THE CALIFORNIA VETERINARIAN

CHARLES S. TRAVERS RETIRES

Report of 71st Annual Convention

JULY-AUGUST, 1959

PUBLISHED BY CALIFORNIA VETERINARY MEDICAL ASSOCIATION

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- ☐ Baby Pig booklet (send supply)

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1. Harris, J.R., and Clarkson, T.B., Prevention of Relapses in Milk Fever, Vet. Medicine, *12*:696 (Dec. 1955)

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THE CALIFORNIA VETERINARIAN

JULY-AUGUST, 1959

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President's Message

Charles H. Ozanian

Since the inception of the California Veterinary Medical Association, the organization has grown from a small group of professional men to an organization that has received recognition both in local and national circles. The establishment of the office of Executive Secretary, the publication of THE CALIFORNIA VETERINARIAN, the establishment of numerous local associations and the public recognition of our practitioners as a highly trained specialized professional group, are achievements that we are extremely proud of.

At the present we are in the process of formulating the House of Delegates. A more ambitious program for the benefit of all members can be developed through better representation and participation of all area groups in the activities of the State Association.

The strength and prestige of our state association depends on the unity of all veterinarians regardless of their individual endeavors. The misconception that one is a small animal practitioner or in the large animal field is only a classification within the profession. The public recognizes each of us as a veterinarian, regardless of our specialty.

The combined strength of the local associations into one large organized unit, the CVMA, with efficient and able leadership, can then carry the prestige of our profession to allied groups and the public effectively. This manifestation was a reality at the recent California legislative session in Sacramento. Through the activities and aggressiveness of the CVMA legislative committee and members at large, state legislators were advised of the detrimental effects of the proposed legislation to the profession and the public alike, hence the propositions were squelched in committee. Our membership in the Public Health League was influential in defeating the measures.

Here, briefly, are some of the objectives which I hope we can work toward in the ensuing year:

1. Through the House of Delegates, the creation of a closer liaison between the membership at large and the CVMA.

2. A committee to study the economics of large animal practice. The urbanization of farm areas, the promotion and uncontrolled sale of livestock remedies, and the attempts of lay infringement of the practice act are contributing factors in the diminution of farm practice. The efficiency of the nation's livestock industry could conceivably be plagued with diseases due to the lack of sufficient veterinary services.

3. A committee to study the feasibility of legalizing and licensing veterinary nurses. This aspect is currently under study by the Board of Examiners. If the profession desires such enactment, the board should be encouraged.

4. More active participation in our publication, THE CALIFORNIA VETERINARIAN, by its members. The CVMA has gained much prestige nationally and abroad from the *Journal*. While attending the International Veterinary Congress in Madrid, several veterinarians complimented the publication. However, the *Journal* does require the re-establishment of member participation as it was originally intended. Much invaluable information and technical knowledge remains dormant because of the modesty of our members.

5. Expand Public Relations: Our profession is too modest in "selling" its activities to the public. Outstanding local association speeches and programs should reach the local papers. The public should know that the profession is "alive and active." Such projects as the development of an award in recognition of achievement to an outstanding 4-H or Future Farmer originating from competition on a local level and terminating at the state level will be proposed to the House of Delegates.

Aside from the superior individual veterinary service rendered by our members in a given community, the Women's Auxiliary has done much to promote our welfare. They are the best public relations agents in any organization. It behooves the membership to encourage and entice their wives to support their local and state auxiliary. They are, and rightly so, an integral part of our association.

In conclusion, your President would be remiss not to recognize the achievements of Mr. Charles S. Travers, our immediate past Executive Secretary. To you, Charlie, as he is affectionately known, we express our highest appreciation for your organizational ability, your calm efficiency, and your skill in overcoming the many obstacles in the past. Your guidance and leadership is evident by our growth and your recognition by our national parent organization, the AVMA, in presenting you the "Certificate of Achievement."

CHARLES H. OZANIAN, D.V.M.

Report of the Seventy-First Annual Convention of the California Veterinary Medical Association

The Bay Area Chapter of the Southern California VMA hosted the seventy-first annual convention of the California Veterinary Medical Association in Santa Monica, June 21-23, in the Miramar Hotel.

The program, arranged by Dr. Ernest H. Houchin, chairman, Dr. Joshua F. Meyer, co-chairman, and Dr. Herbert N. Snow, local chairman, and his hard-working assistants, was of excellent caliber. Some highly instructive papers were presented, including several by medical doctors.

More exhibitors showed their products and services than ever before.

The general session, Monday, June 22, began with a breakfast (a new departure), after which followed the invocation by Brother Hilary J. Deering, of the Santa Monica High School. The welcome was given by Mayor Ben A. Bernard, of Santa Monica, and the response by President Stowe.

The program got under way shortly after 9:30 a.m. with the presentation of a paper by Dr. Kenneth B. Haas, The Upjohn Company.

Editor's Note: The meetings were tape-recorded. Some of the papers appear elsewhere in this issue; others will appear in future issues of THE CALIFORNIA VETERINARIAN. The machines used were Geloso model G255, furnished by Lebeck's Business Equipment Company, Sacramento, and recorded under the direction of Walter McCall, senior student at Davis.

Corticosteroids. Speaking on the newer corticosteroids in veterinary medicine, Dr. Haas stressed the importance of using the corticosteroids as adjuncts to other accepted modes of therapy and that they should not be used to substitute for diagnosis, nor should they be allowed to supplant whole shelves in the veterinarian's pharmacy.

Fluid and Electrolyte Therapy. Dr. Maxine Benjamin of the Department of Pathology and Bacteriology at Colorado State University reported on simple guides for practical application of fluids and electrolyte therapy. Her talk was supplemented by colored slides.

The Laboratory Animal Technician and Career in Care. Dr. Bennett J. Cohen, Director of Vivarium, UCLA Medical Center, presented a film illustrating the indoctrination of animal technicians and caretakers at the UCLA Medical Center. This film tries to define the career opportunities for the prospective laboratory animal technician. Where he fits, what he can do, and what are the nature of his duties.

This was the second of three films in this series. The first is a motivation film which gives the historical perspective and orientation to the animal technician for the purpose of inspiring him to want to learn.

The third film is still in the script writing stage and will deal with parasitic diseases or infections of the laboratory species.

Brucellosis. Drs. C. M. Carpenter, H. S. Cameron, R. D. Courter and J. L. Briggs panel discussion on Brucellosis in man will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

MONDAY

SMALL ANIMAL SESSION

General and Clinical Aspects of Immunology. Roderick L. Snow, D.V.M., practitioner, Reseda.

Distemper Immunization. Dr. George T. Edds, Vice President, Fort Dodge Laboratories, Inc., presented a paper on the current status of distemper immunization programs.

Success in Practice. Some of the factors influencing the success of a small animal practice were discussed by Dr. Raymond W. Sprowl, practitioner, Los Angeles. An outline of his plan will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

Acanthosis Nigrans. Mr. Austin Taylor presented Dr. A. H. Haskell's paper on Acanthosis Nigrans in small animals. Dr. Haskell is director of pharmacological research for Jensen-Salsbery Laboratories, Inc.

Patellar Ectopia. Dr. Ralph C. Vierheller, practitioner, Whittier, discussed the surgical correction of patellar ectopia. His talk was illustrated by a movie of the surgical procedure. Dr. Vierheller's paper will be found elsewhere in this issue.

Bird Practice. A panel discussion of pet bird practice with Drs. Lawrence Minsky, John Puckett and Herbert Snow, with moderator Dr. Arodd Clark. Their papers appear elsewhere in this issue.

MONDAY

LARGE ANIMAL SESSION

Mastitis. Dr. Kenneth McKay, extension veterinarian, Davis, and Dan Noorlander, Davis extension service, presented the California mastitis control program as recommended by the University of California, and explained the mechanical phase of mastitis as it pertains to the use and operation of the milking machine.

Laminitis. Dr. John Britton, practitioner, Oakdale, reported on spontaneous chronic equine laminitis and how he handles it in his practice.

Executive Committee, CVMA, *left to right:* W. W. Putney, R. L. Collinson, Ernest H. Houchin, Charles H. Ozanian, E. R. Braun, Irving M. Roberts. *Not pictured,* Richard L. Stowe.

Legal Hazards to Livestock and Economic Poisons. S. A. Peoples, M.D. Appears elsewhere in this issue.

Obstetrics. Dr. V. L. Tharp, director of the veterinary clinic, Ohio State University, discussed some reproductive and obstetrical problems and illustrated his talk with a movie.

Brood Mare and Foal. Dr. Weden P. Humphrey reported on some of his brood mare and foal experiences.

TUESDAY

SMALL ANIMAL SESSION

Guide Dogs for the Blind. A film depicting the training period for the blind masters and their guide dogs at the Guide Dogs for the Blind, Inc., in San Rafael, California, was shown.

Physiology of the Small Animal Jaw as Applied to Fractures. Marsh E. Robinson, D.D.S., M.D., Staff, School of Medicine, University of Southern California, Los Angeles. Dr. Marsh's paper appears elsewhere in this issue.

Volatile Anesthetics. Dr. George T. Edds presented a paper on the comparative safety and effectiveness of volatile anesthetics.

Tests and Equipment. Dr. Maxine M. Benjamin, Colorado State University, discussed the rapid tests and equipment suitable for use in veterinary medicine. Dr. Benjamin illustrated her talk through the use of colored slides and stressed those tests which are inexpensive, fast, accurate and of value in routine application.

Drug Action. Dr. Haas presented a paper on the mechanisms of drug action, an abstract of which appears in next column.

Mechanisms of Drug Action

KENNETH B. HAAS, D.V.M.
The Upjohn Company, Kalamazoo, Mich.

If the pituitary-adrenal axis is unable to respond to the increased need for circulating corticosteroid, a typical picture ensues. This is the picture of stress, which may have as its ultimate effect—shock. Why does this syndrome occur? There is evidence that corticosteroids trigger the effect of vasoconstrictors. It is a paradox that the need for circulating corticosteroid in time of stress and shock is curtailed at exactly the time when there is increased need. Intramuscular use of corticosteroids is contraindicated in shock because suspensions are poorly absorbed from ischemic muscular beds. This is a potent reason for the use of intravenous corticosteroids in such cases.

Other areas of drug mechanism that have been explored are the antiinflammatory and antitoxemic mechanisms. The effect of ultraviolet waves on the skin and the protecting effect of methoxsalen are discussed in relation to Collie-nose (solar dermatitis). The effects of ethoxzolamide in aqueous humor secretion are discussed from the mechanistic viewpoint.

Question and Answer Luncheon. A report of the topics discussed will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

TUESDAY

LARGE ANIMAL SESSION

One Horse Practice. Dr. V. L. Tharp discussed castration, urinary calculi, colic, distocia, wire cuts and vaginal speculum examination technique.

Hormone Implants and Feed Additives. Dr. Glenn E. Taylor, practitioner, Modesto, discussed the use of hormone implants and feed additives in his practice.

Disease Control in Zoo Animals. Wesley A. Young, D.V.M., supervisor, Griffith Park Zoo, Los Angeles. Dr. Young's paper appears elsewhere in this issue.

Tranquilizers in Large Animals. Dr. Haskell's paper, delivered by Mr. Austin Taylor, on the use of the tranquilizers in veterinary medicine will appear in a forthcoming issue of THE CALIFORNIA VETERINARIAN.

GENERAL SESSION

The Treatment of Superficial Fungus Infections in Man With Griseofulvin. Dr. Newcomer's paper appears elsewhere in this issue.

Training the Guide Dog. Clarence Pfaffenberger presented some of his findings in relation to the selection and training of dogs used by Guide Dogs of the Blind, Inc., at San Rafael.

Business Meeting

The CVMA business meeting was called to order by President Stowe at 3 p.m. Tuesday, June 23. Registration of members was accepted in lieu of roll call.

The minutes of the previous meeting were read and approved. The executive secretary's report was then read.

The treasurer's report was read and accepted. (The complete report was contained in the July 8th CVMA Bulletin.)

Dr. Philip C. Olson, chairman of the Ways and Means Committee, and Dr. Robert W. Ormsbee, chairman of the Legislative Committee, gave their reports (which appear elsewhere in this issue).

Unfinished business: **Insurance.** The new group plan the association approved in February at Davis with the Northwestern National Life Insurance Company has brought 77 applications in the San Francisco office; more than 80 from the Los Angeles area. Approximately 200 additional applications are needed to qualify the plan. Brokerage firms in San Francisco, Los Angeles and Fresno are handling the applications.

New Business: Resolutions passed by the executive committee were the following:

1. Be it resolved that the new constitution and by-laws providing for the House of Delegates, as published in THE CALIFORNIA VETERINARIAN, March-April issue, be accepted. Carried.

2. Be it resolved that Charles S. Travers be granted honorary membership in the CVMA. Carried.

3. Be it resolved that the following applications for membership be accepted: (a) 51 members from the University of California; (b) Drs. Murray A. Pollock, James M. Harris, Harland R. Case, P. J. McDermott, Frederick W. Arnold and G. E. Dorius. Carried.

4. Be it resolved that Dr. Jacob Traum be granted honorary membership in the CVMA. Carried.

5. Be it resolved that Dr. Peter Egan be granted a life membership in the CVMA. Dr. Egan was a member for 46 years and is now retired. Carried.

6. Be it resolved that the bid by the Southeast Chapter of the SCVMA for the 1961 convention to be held in Long Beach be accepted. Carried.

A moment of silence was observed for the following veterinarians who passed away during the past year: Drs. Benjamin F. Corbin, Paul A. Carlson, L. C. Smith, Charles Edward Price, Gardner W. Closson, B. B. White, Elmer B. Edmonds, Jerrold W. Cole, Delbert Cook and Howard S. Akin.

It was moved and carried that the CVMA go on record as supporting the contract veterinarians in the state in their efforts to secure a 20% raise in fees for vaccinating calves and for blood testing cattle under regulatory work.

The meeting was adjourned to Hawaii and officially terminated July 1, 1959. (See page 25, this issue.)

Pitman-Moore Releases Globulon

Pitman-Moore Company, Division of Allied Laboratories, Inc., has announced the release of Globulon, a purified solution of canine beta and gamma globulins, the antibody containing fractions of blood. The product is purified through the process of alcohol fractionation using methods similar to those for human gamma globulin, and is assayed both qualitatively and quantitatively by electrophoretic analysis.

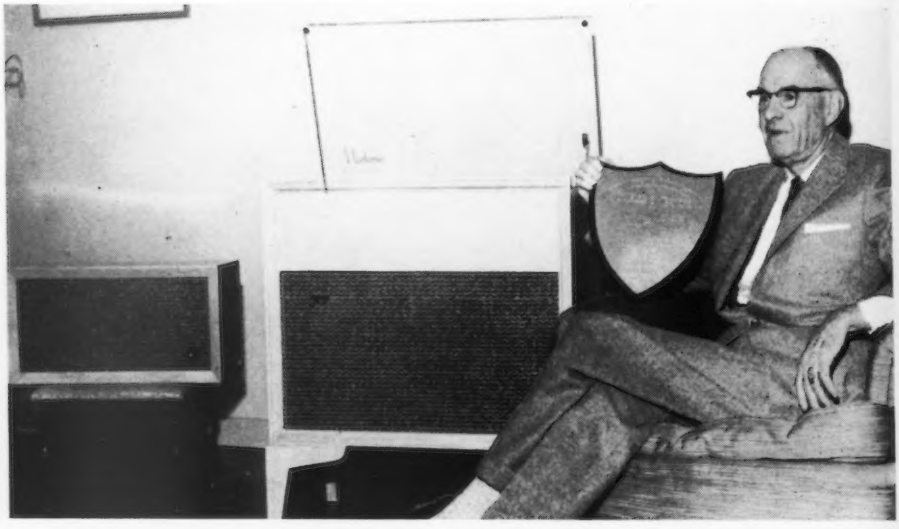
Globulin has similar indications in veterinary medicine as human gamma globulin has in the treatment and prophylaxis of stubborn human infections. Protection against the common infections—distemper, hepatitis, and leptospirosis—is provided by only one-fifth the dose formerly required with antiserum. Extensive clinical investigations indicate that Globulon is effective in the treatment of a wide variety of infectious conditions, and has a synergistic effect when used in combination with antibiotics, sulfonamides and other therapeutic agents.

Dr. Eberhardt on Gaines Panel

The ninth annual veterinary symposium on "The Newer Knowledge About Dogs" will be held October 14 in Kankakee, Ill., under the auspices of the Gaines Dog Research Center, New York.

Dr. George W. Eberhardt, CVMA member, and presently with the Veterinary School, Kansas State College, will be one of the speakers. His subject: "Epilepsy in the Dog."

Charles S. Travers, Executive Secretary, Retires



Mr. Travers listens to Hi-Fi, presented to him by his many friends upon his retirement. He holds plaque awarding him Honorary Membership in CVMA.

The President's Banquet, Monday evening, June 22, was the setting for the official retirement of Charles S. Travers, executive secretary of the California Veterinary Medical Association since 1947. Unfortunately, Mr. Travers was too ill to attend.

But his scores of friends in the association paid him high tribute for his many years of selfless effort in building up the association.

To one of Mr. Travers' oldest friends in the organization, Dr. Ernest C. Baxter, of Pasadena, went the honor of eulogizing Mr. Travers. As tape-recorded at the banquet, here are the words of Dr. Baxter:

"Mr. President, honored guests. In view of the assemblage here tonight, I feel that I should be on 'This Is Your Life.' However, we all realize that the banquet is usually the highlight of any annual Veterinary Medical Association meeting. Tonight was supposed to be a special meeting because we were about to bid goodbye, to pay our respects to, a very dear, respected friend and servant of our association, Mr. Charles S. Travers.

"Up until 1946 our state association was a sort of hit or miss deal. We had our officers; we were all practicing veterinarians; we did the best we could but we didn't have too much time to devote to the affairs of the association. Then someone came up with the great brainstorm that we should probably have an executive secretary; a paid secretary. I believe the man who was mainly responsible for that was Joe Arburua. That's how Charlie Travers was born.

"Charlie Travers came to work for us in 1947. He has done a terrific job. When he first came to work for the CVMA there were about 250 members. Now, in 1959, there are over 1,000. He started publishing a magazine, THE CALIFORNIA VETERINARIAN, which is recognized throughout the country as the outstanding state association magazine representing the veterinary profession.

"I am sorry that Charlie can't be here tonight. I think that most of you know that he has been ill and has been in the hospital in San Francisco. I understand now that he is home and resting very quietly. If he were here there is only one thing I could say to him tonight. We have a few gifts to present to him that I am sure will remind him of us.

"First is a plaque from the CVMA to Charles S. Travers. It is an honorary membership for his outstanding service as executive secretary from 1947 to 1959. Presented at the 71st annual meeting in Santa Monica, June, 1959.

"Dr. Arburua, will you please accept this in the name of Mr. Travers in recognition of our appreciation of his service to the CVMA for the last 12 years?"

Dr. Arburua responded as follows: "Ladies and gentlemen, Mr. Chairman. It affords me great pleasure to have had the honor and the privilege to represent Mr. Travers on this occasion. All I can say is the message which he asked me to deliver, and that is that he wishes this association many years of success;

(Continued bottom of next column)

Surgical Procedures As Related to the Pet and Wild Bird*

HERBERT N. SNOW, D.V.M., *Practitioner, Malibu*

My paper today will cover surgical procedures as related to the pet and wild bird. We are limited to a few areas on the anatomy of the bird. Surgical removal of tumors is the most common procedure carried out to date. Other corrective procedures follow in somewhat this fashion: leg amputation, digit or claw amputation, correcting "egg-bound" birds by either incising the opening to the vent or fracturing the egg and removing the shell fragments.

Surgical trimming of the beak and claws may be done with sharp scissors or the common small-animal nail trimmer. Surgical correction of wing and leg fractures will not be discussed in this paper.

Surgery in general on birds is fairly difficult due to the after effect of blood loss and shock. I would suggest the following procedure for most surgical problems: 1. Use ether as the general anesthestic. 2. Make the field aseptic as you would in preparing any animal for surgery. 3. Pluck the feathers to make the area as readily accessible as possible.

We are ready for surgery and I will discuss tumor removal as this is one of the most common procedures. Lipomas and Liposarcomas are most often seen. Lipomas are readily removed without too great a risk. Liposarcomas are difficult to remove due to the firm attachment to the abdominal viscera and related blood supply. On excising the sarcoma, decide on complete or partial removal. If the bird is young and in a good state of health, complete removal is usually the best advice. If the bird is a year or older, the Liposarcoma may have weakened it so that partial removal is advised. I do feel that we will establish better public relations with the bird-owner by extending the life of the bird for even a few months. Be completely fair with the bird-owner by mentioning the anticipated recurrence of the growth. On either the benign or malignant growth, enter the skin with a suitable scalpel (Bard-Parker No. 10 blade is excellent). By using blunt dissection, work the growth free. Use extreme caution to control bleeding by any hemoslatic agent such as Monsel's Solution or ligate the capillaries with catgut or any suitable fine ligature. After the growth is removed, the use of a tetracycline antibiotic powder or opthalmic ointment in the wound area is recommended.

The Parakeet is very resistant to local infections, but the Canary and some other birds may benefit from the local antibiotic therapy. Closure of the incision is done with any fine monofilament suture material. (Vetaphyllin works very well in this case.) The bird may pick at the sutures but usually will not pull them out. Allow the incision to heal without the aid of protective dressings, as the bird will pick at any sort of gauze or tape covering.

As a matter of interest, the induction of the ether anesthesia can be readily carried out in a simple manner. A paper towel may be rolled up into a funnel-shape and ether-soaked pleget of cotton dropped into the pointed end of the paper funnel. Then insert the bird into the paper funnel at the opening, folding the open end over, creating a closed chamber. The bird will struggle for a second or two until it has inhaled sufficient ether for surgical anesthesia. The use of adhesive tape will support the bird to the surgery table in the desired position. Remove the skin sutures in a week's time.

Histopathology on the Lipoma and Liposarcoma was done by a pathologist in a local (human) general hospital.

Summary

Surgical removal of tumors on the Parakeet and Canary may be done in most animal hospitals with a reasonable rate of success. Caution must be used in controlling the bleeding to prevent shock. The recovery will depend upon your decision to do complete or partial removal of the growth. I would advise keeping the bird in your hospital at least over night.

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

(Continued from preceding column)

that it may continue to be the leading state association in the United States, a participant member of the AVMA, and he wishes everybody, individually, success and happiness. And, in behalf of Mr. Travers, I would like to say thank you for him."

In addition to the plaque given by the CVMA, the Southern California VMA presented him with a plaque in recognition of his work, ending with the words: "Well Done." Dr. Howard Taylor, president of the SCVMA, introduced Dr. Charles H. Reid, who made the presentation to Mr. Travers in absentia.

The many friends of Mr. Travers throughout the association presented him with a check and a Hi-Fi set.

Request from Russia

The Institute of Scientific Information of the USSR Academy of Sciences has requested a specimen copy of THE CALIFORNIA VETERINARIAN. The Institute is endeavoring to supply its readers with information on the latest achievements in science and technology. Our Journal will be studied carefully with the purpose of reviewing it in their Abstracts Journals.

San Francisco Veterinary College Alumni Meets

Here is a group of 43 students of the S.F. Veterinary College. The picture was taken in 1914. Of the 300 who graduated from the college, less than 100 remain.

Once we were young, gay, virile and vigorous. Today we are a group of aging men who like to reminisce and live in the past.

Nowhere was this sentiment more clearly reflected than it was during the annual dinner meeting of the San Francisco Veterinary College Alumni, which took place in Santa Monica on June 21, during the annual convention of the CVMA.

The SFVC, which served its purpose so well along with the other private schools when state supported institutions failed to supply the needs of the profession, ran from 1900 to 1918 and graduated well over 300 veterinarians.

This year only six of the old-timers, who now number less than 100, responded to the secretary's call. This was the smallest attendance since the annual meetings commenced in 1955. The average age was 71 years. Last year there were 19 present and their average age was 69.

Those in attendance were: Clyde Litton, '15; Frank O. Brostrom, '16; C. S. Brooks, '15; Fred Wright, '10; President R. E. Duckworth, '15, and Secretary Joseph M. Arburua, '15.

That the spirit is willing but the flesh is weak was no better manifested than by the many letters and telegrams received. Though with us in spirit, their physical condition prevented many from attending.

Next year the meeting will be held in San Francisco in June. It is hoped that since San Francisco is the professional cradle of this vanishing group that a large attendance will be reported.

—Joseph M. Areurua, D.V.M.
Secretary

Dettelbach Named Research Director at Jensen-Salsbery

Appointment of Dr. Harold R. Dettelbach as director of research for Jensen-Salsbery Laboratories, Inc., subsidiary of Vick Chemical Company, was announced.

Dettelbach succeeds Dr. C. M. Cooper in the post, according to Dr. Vladimir Dvorkovitz, president of this Kansas City veterinary pharmaceutical manufacturing firm.

The new research director was formerly assistant to the director of exploratory development for Smith, Kline & French Laboratories since 1957. Before that, he was on the staff of G. D. Searle Co.

Dettelbach earned his Ph.D. degree from the University of Bern, Switzerland, in 1952.

Legal Health Hazards to Livestock Due to Economic Poisons*

S. A. PEOPLES, M.D., *Dept. of Veterinary Medicine, U. of C., Davis*

Recently in reviewing a series of toxicological cases handled in our laboratory, I was impressed by the number which resulted in severe losses to the farmer that an alert veterinarian could have prevented. In many instances there were serious infractions of the law as it is now being applied by the Federal Food and Drug Administration which is determined to enforce their regulations. Since these new regulations may be new or confusing to some of you, they will receive special emphasis in this discussion. Finally, the controversial subject of atomic fall-out and its relation to animal food products will receive some attention as a serious toxicological problem of the future.

Nitrate poisoning is well known to all of you but in the last year two very unusual cases occurred which illustrated a basic principle which is often forgotten. In both cases farmers planted several fields of Sudan grass which was green chopped for dairy cattle. When the cattle were fed from field A, everything was alright but after a single feeding from field B most of the cattle went down with nitrate poisoning with several deaths. An examination of both fields showed that both contained the same amount of pig-weed but the growth of Sudan was best in field B. Analysis showed that while the nitrate content in field A was normal in all the grass varieties, both the Sudan and pig-weed had very high levels in field B. Since both fields had been treated in the same way, it was difficult to account for this tremendous and lethal difference. It was finally discovered that in both cases the fields producing the high nitrate grass had been previously used as feed-lots for many years and thereby became saturated with available nitrate. Apparently under such conditions any grass may store toxic amounts of nitrate although not known to do so under normal conditions. I need not add that it would have been disastrous if the veterinarian had jumped to the conclusion that the Sudan grass had produced prussic acid poisoning and administered the usual treatment.

The increasing acreage given over to cultivation of castor beans is raising a problem for which as yet there is no answer. It is well known that the castor bean contains a protein poison, ricin, which produces a violent enteritis in animals with prostration and death in shock. The present methods of harvesting this crop leave many shattered beans on the ground to be eaten by grazing animals or to germinate in the following spring. When these young plants grow up in a pasture or alfalfa field they create a real problem because they also contain the poison ricin. What advice should be given to a farmer who has such plants in his baled hay? He will not be too pleased by the statement that the first cutting will kill the plants, as he wants to do something with the first cutting of hay. Unfortunately, we are not in a position to offer any better advice than to warn that the feed could be poisonous. A modest project is now underway to obtain the information on which to base a more satisfactory answer.

A recent case illustrates the way in which the health of animals was not involved but an alert veterinarian could have saved a farmer severe financial loss and liability for criminal action. A dairy milking 300 head of registered Guernseys was feeding corn silage put up from corn after it had been picked for market. A spot check by Federal Food and Drug inspectors dislosed that the milk contained a high concentration of DDT. An inspector was stationed at the farm with orders to dump the milk and not let it leave the farm until the DDT reached the allowable tolerance level, which is zero. It was found that the 300 tons of silage was loaded with DDT which had been applied for the control of corn borers by dusting each ear with a shaving brush dipped in the insecticide. Since the feeding had gone on for many weeks and the body fat of the cows was nearly saturated, the outlook was discouraging, since excretion is slow and the butterfat follows the body fat concentration. Several weeks went by and finally the milk was released, but not before a monetary loss of over $15,000. There are several points which are well illustrated by this case. First, FDA is making checks and this is only one of many dairies picked up. Second, the veterinarians should take the responsibility for preventing such cases by checking feed sources for possible contamination and not wait for evidence of poisoning in the animals. Suspected feed can be sent to the State Bureau of Chemistry for analysis and if found contaminated the farmer can recover from the feed dealer.

As a further evidence of the change in the attitude of the FDA toward food adulteration is their interpretation of the Miller Amendment and the more recent Delaney Anti-cancer Amendment to the Pure Food Law. It is now held that nothing can be added to food directly or indirectly (in the feed, or as a drug) which has not been demonstrated to be harmless when fed over a two-year period to experimental animals. Furthermore, nothing can be added to animals' feeds which can cause cancer in any animal under any condition, thereby ruling out, for example, diethylstilbestrol and all arsenic compounds. The FDA has ruled further that a veterinary drug added to food

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

or water becomes a food additive whether or not the residue of the drug becomes a component of human food. How this far reaching interpretation will be enforced probably will be settled by legal action but it is obvious that the veterinarian is vitally interested in the outcome.

Lastly, I would like to mention a subject which is a problem of the future, the contamination of food of animal origin with radioactive fall-out. This is a subject which is emerging as a real scientific problem after years of confusion due in part to politics, a policy of secrecy, and simply a lack of accurate knowledge. It is now clear that Strontium 90 presents a real problem because it is handled by plants and animals as if it were calcium. It is true that while in many absorption processes there is discrimination against Strontium, there is a substantial uptake and the bones and milk of all animals contain increasing quantities of the radioactive element. This is particularly true of certain parts of the globe since it is now known that the northern temperate zones are getting more than their share. It has also been found that the fall-out is coming down at a faster rate than previously predicted. Another factor is the development of industrial uses of atomic energy. As the result of a recent accident in such a power plant in England, milk over a wide area is being dumped due to cows eating radioactive grass. Such radioactive isotopes decay rapidly and the hazard will probably be short-lived but it does point out the possibility that the veterinarian of the future may have to carry a Geiger counter in his station wagon.

In conclusion I would like to emphasize that the veterinarian should be alert to prevent the development of disastrous cases of poisoning. To do this he must keep himsef informed of new regulations concerning food adulteration and be in a position to protect both the farmer and the public food supply.

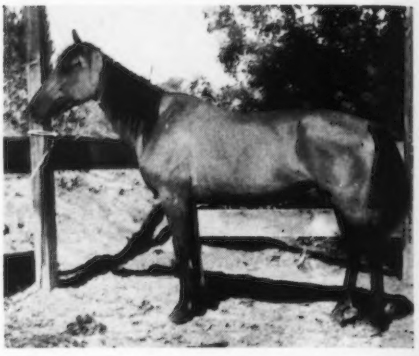
AVMA and Pan American Congress August 23-27, Kansas City

The 96th Annual meeting of the American Veterinary Medical Association will be held in conjunction with the Third Pan American Congress of Veterinary Medicine, August 23-27, in Kansas City, Mo.

More than 100 scientific papers are scheduled for presentation at the joint meeting. There will be 89 commercial exhibits, the largest and most diversified showing of veterinary products and technical developments yet displayed. In addition there will be 22 scientific exhibits from educational institutions and governmental agencies.

Executive Secretary Kenneth Humphreys, CVMA, will attend the meeting.

Case Report—Follow-up



Here is a follow-up photo of the mare described on page 28 of the May-June, 1959, issue of THE CALIFORNIA VETERINARIAN. Considerable improvement shown; owner has been riding. At this time she is indulging in a relapse — jaundiced membranes; temperature 104; pulse 80; respiration 30, although eating and feeling good. Definitely negative to leptospirosis (L. A. County Livestock Office).

Hematocrit shows:

PCV	9.4	Lymphocytes 17
BC	.4	Monocytes 10
		Neutrophiles 72
		Eosinophiles 1

No parasites on fecal examination.

CHARLES H. REID, D.V.M.
July 1, 1959

Movement of Dairy Cattle into Nevada

The Division of Animal Industry, Department of Agriculture, Nevada, advises that due to reported incidence of bovine tuberculosis in California, it is requested that all shipments of dairy cattle into Nevada comply with federal regulations requiring a tuberculin test within the 12-month period before shipment.

All dairy cattle entering Nevada from California will be held for a tuberculin retest at destination prior to release.

New Horizons in Chemotherapy

The second regional conference on nitrofurans in veterinary medicine was held May 28 in Madison Wis. The day's program was sponsored by Eaton Laboratories and the Wisconsin Veterinary Medical Association.

Dr. Robert A. Jackson of Ontario, a member of the CVMA, was one of the speakers. His subject was "A Program for Mastitis Control." Dr. Jackson, a native of Wisconsin, received his D.V.M. degree from the University of California in 1953.

Diseases and Veterinary Problems in a Zoo*

W. A. YOUNG, D.V.M., *Supervisor, Griffith Park Zoo, Los Angeles*

There is nothing simple about handling the veterinary problems in a zoological garden.

The great variety of animals dealt with present a changing and complex picture with a great mixture of problems of diet, housing, health, disease, sanitation and presentation to the public.

W. A. YOUNG

It goes without saying that no animal can ever be in a zoological collection or in exhibition without having been captured. The result is that many of the animals die from injury, panic, fright, poor housing, cramped crate space, lack of exercise, exposure to elements, faulty feeding and just plain poor care; all of these things before the animal ever gets to a zoo.

The tranquilizing drugs and anesthetic drugs available today offer us a means of chemical restraint which is very promising. These preparations will either completely immobilize the animal or will lessen the panic in the animal's mind sufficiently to enable another means of restraint to be utilized safely and easily.

The proof of the pudding of adequate and proper housing, handling and feeding of animals often can be measured by the breeding and rearing of young which takes place in the zoo.

In years gone by, many of the zoological animals failed to breed and rear young. Today many zoos are able to successfully raise many young, even to the point of having a surplus.

Such animals as gorillas and orang-utangs are now breeding in some of our zoos. Just within the past couple of years the first successful breeding and rearing of young rhinoceri has occurred.

We have much to learn about some of the idiosyncrasies of the mating, breeding and rearing of young by the so-called exotic animals of the world. The rhinoceros is a good example for it appears that the male and female of these creatures are in heat at different times. Thus it is necessary that some special arrangements be made to bring about successful mating.

Veterinary literature contains some information on medication of zoological animals. Unfortunately there isn't enough such literature to answer the needs. A great deal of what is known by veterinarians and keepers in the field of medication of zoological animals rests within the memories of individuals who work in these places. Most of us are a little too busy to write books or brochures telling about specific things in this field of medication. Fortunately though, we have such places as the Penrose Research Laboratory of the Zoological Society of Philadelphia. This group is doing a fine piece of work and publishes a report which all veterinarians interested in zoological work should secure.

An increasing number of zoos today are employing veterinarians full or part time, such as San Diego, Brookfield, Lincoln Park, Bronx, and so on through a considerable number. All of this means that our veterinary know-how is increasing and thus literature on medication and other problems of zoological creatures will be enhanced in due course of time.

It appears to me that our veterinary schools should devote more attention to this field of veterinary medicine and make a special effort to increase the literature concerned therewith.

It was my urgent desire at the time I accepted the position of Supervisor of Griffith Park Zoo, that I have a group of fellow veterinarians upon whom I could lean in case of need. Happily the Southern California Veterinary Medical Association maintains a special consultative committee which meets in my office once a month. We discuss the problems of the Zoo and general zoological problems, survey the exhibits and cover the field quite thoroughly in such meetings. The individual members of the committee, as well as others within the profession, are available for consultation and actual veterinary service as needed.

This special committee is made up of individuals who are particularly qualified in certain fields such as large animals, small animals, birds, reptiles, etc.

In addition to the actual committtee, we have a working arrangement with the Los Angeles County Veterinary Department wherein we use their laboratory facilities and their laboratory technician sits in on our committee meetings. Thus we send specimens for laboratory study to the lab with considerable regularity and in turn receive excellent guidance from their reports.

The laboratory workers and the members of the consultative committee receive modest compensation and so I requested of the administration of the Recreation and Parks Department that compensation be made to these individuals. Thus we are receiving good serv-

(Continued on page 48)

*Presented (condensed herewith) at the CVMA Convention, Santa Monica, June 21-23, 1959.

Fracture Repair in Small Pet Birds*

JOHN R. PUCKETT, D.V.M., *Practitioner, Venice*

Fracture repair in small pet birds is a simple and uncomplicated procedure. Non-unions and osteomyelitis that are sometimes encountered in the dog and cat are usually no problem.

The equipment needed is minimal, as cotton, tape and applicator sticks suffice. Ether works well in the removal of the splints. Anesthesia may be necessary in compound fractures if suturing is to be attempted, but generally speaking is too risky to be warranted routinely.

The etiology is commonly from flying into objects, being bitten by dogs and cats, or the catching of toes or leg bands in cages or screen doors.

Veterinarians, when examining pet birds, should always close doors and windows, shut off fans and gas heaters, use a small examining room and, if possible, have the client hand the bird to them. These precautions will minimize fractures from occurring in their hospitals. Great care must also be used in the removal of leg bands.

Palpation is all that is necessary in making a diagnosis which is often correctly made by the owner. However, one must differentiate neuritis, sprains, bumble-foot, gout and unilateral paralysis, which is often caused from abdominal tumors encroaching on the pelvic nerve.

Fractures encountered are usually simple and complete; however, compound ones sometimes occur. Incomplete fractures undoubtedly occur, but are probably diagnosed as sprains.

The clinical features of fracture repair and osteogenesis is similar to that of dogs and cats except that calcification generally is complete in ten days. The increased rate probably being due to the terrific flow of circulation in small pet birds.

Note: Dr. Puckett used colored slides in the demonstration of external fixation of the wing and leg.

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

President's Message, Women's Auxiliary

On behalf of the Women's Auxiliary to the CVMA, I want to thank Mrs. Harold D. Snow and her committees for the wonderful entertainment and courtesies which they provided for the Auxiliary at the June Convention in Santa Monica. We are now looking forward to the Mid Winter Convention in Davis, February 1-3, 1960, and I would like to extend an invitation to all wives, widows, daughters, mothers, and sisters of veterinarians, and others interested in the work of the Auxiliary to attend. We plan to have a special event for the women each day, and on February 2nd, the Sacramento Valley Auxiliary is having a Luncheon and Fashion Show for us at the El Rancho.

We hope that many more wives will join the Auxiliary this year and assist their husbands in advancing the science and art of Veterinary Medicine through the great contribution which they can make in the field of public relations. MRS. BEN S. BURDO, *President*

Mrs. Herbert Ott, Parliamentarian; Mrs. William W. Putney, membership; Mrs. R. T. Hauge, treasurer; Mrs. Reginald Stocking, past president; Mrs. Russell P. Cope, president-elect; Mrs. Ben S. Burdo, president; Mrs. Louis Johnson, 2nd v-p; Mrs. Harold D. Snow, secretary. Not in photo is Mrs. Donald E. Jasper, 1st v-p.

Adjourned Trip to Hawaii A Success

The adjourned meeting of the CVMA, held in Hawaii, was an outstanding success, according to reports received by returned delegates.

The trip began by air from International Airport, Los Angeles, June 24, returning July 2. Among the features of the 10-day tour was the Hawaiian Barbeque and a visit to the fabulous Parker Ranch. According to the tour drivers, the CVMA group was the first ever to visit the Parker Ranch.

Official closing date of the June convention was in Honolulu, July 1 — a night meeting. This was the semi-annual meeting of the Hawaii Territorial Veterinary Medical Association. The program was as follows:

"Some Diseases of the Cat," Dr. R. Stansbury.

Panel Discussion "Hardpad Disease, Field Observations." Dr. R. A. Button, Moderator; Drs. J. Winston, A. Immenschuh, N. Jerome, G. Troxell.

Panel Discussion: "Realistic Fees in the Year 1959 A.D." Dr. J. Perry, Moderator; Drs. W. Brandner, S. Davis, J. Streeter, H. Rockwell.

Credit for the success of the adjourned meeting in Hawaii goes to Dr. Ernest H. Houchin, program chairman.

American College of Veterinary Toxicologists to Meet

The American College of Veterinary Toxicologists will hold their second annual meeting in Kansas City, August 23, the day preceding the 96th annual meeting of the AVMA.

Dr. H. E. Furgeson, from Anaconda, Montana, will deliver the president's address. Other speakers include: Dr. Glen C. Halver, Glendive, Montana; Dr. T. Lloyd Jones, Guelph, Ontario; Dr. N. J. Camp, College Station, Texas; Dr. T. A. Hymas, Midland, Mich.; Dr. H. W. Reuber, Stillwater, Okla., and Dr. Paul B. Hammond, St. Paul, Minn.

General Wayne O. Kester, past president, AVMA, will be one of the featured speakers at the banquet.

Veterinarians desiring to attend or wishing to join the College, may write Dr. William F. Harris, secretary, American College of Veterinary Toxicologists, 1102 E. Main, Puyallup, Wash.

Canada's Dr. Archibald Named "Veterinarian of Year"

Dr. James Archibald, head of the division of small animal medicine and surgery, Ontario Veterinary College, Guelph, Canada, is America's newest "Veterinarian of the Year."

A native of Scotland who received the bulk of his preparatory education in New Jersey and his veterinary schooling in Canada, Dr. Archibald was selected for the honor by the Awards Committee of the American Animal Hospital Association, of which Dr. Charles W. Bower, Topeka, Kansas, is chairman.

Dr. C. E. Cornelius, School of Veterinary Medicine, recently returned from a five weeks' fellowship in the San Diego area. Dr. Cornelius is co-chairman of the program committee and is arranging the Midwinter Conference, February 1, 2 and 3, 1960.

CAMERA HIGHLIGHTS

Santa Monica 1959

Above—(Seated): Dr. Paul D. Foster, pres.-elect, CMA, and Mrs. Foster. *(Standing):* Vincent S. Dalsimer, Director, Dept. of Professional and Vocational Standards, and Mrs. Dalsimer.

Right—Dr. E. R. Braun, president-elect, and Mrs. Braun.

Below—Dr. Ernest C. Baxter, at microphone, presents CVMA plaque to Dr. Joseph M. Arburua, for Mr. Travers. Dr. Richard L. Stowe, retiring CVMA president, is at left.

Right—
President Ozanian Presents Watch to retiring President Dr. Richard L. Stowe

Left—William E. Barbeau, Executive Secretary, Board of Examiners in Veterinary Medicine, and Mrs. Barbeau.

Below—Dr. Howard Taylor *(left)* and Dr. Charles H. Reid show plaque presented to Mr. Travers by SCVMA.

– Dr. Russell
Cope, retiring
surer, acknowl-
s plaque from
A.

The Reflex Controlled Non-Lever Action of the Mandible*

MARSH ROBINSON, D.D.S., M.D., F.A.C.S.,

Professor of Oral Surgery, University of Southern California School of Dentistry

The object of this paper is to present a workable concept of the action of the jaws as a basis for understanding the clinical problems and treatment in veterinary dentistry. There exists many misconceptions in the literature which are perpetuated by the copying from one textbook to another. It appears that anatomical knowledge has not been applied to oral physiology. The gross anatomy of the tempromandibular joint is not one of stress bearing; therefore, a new concept of non-lever action is necessary. Joint function without stress will be explained on the anatomy of muscle and bone involved. A neuromuscular reflex action for this non-lever jaw action will be presented. A knowledge of oral physiology is necessary for rational treatment in all fields of veterinary dentistry. The anatomy of the dog will be used to illustrate the problem.

Findings

1. *The Fossa:* On the under surface of the zygomatic process of the temporal bone is a transverse groove. This smooth slightly concave surface is the mandibular fossa. The bone separating the mandibular from the temporal fossa is thin compact bone.

2. *Condyle:* Approximately midway between the coronoid and angular process on the posterior surface of the mandibular ramus is the condyloid process. This process is transversely elongated and approximately the size of the mandibular canine tooth.

3. *Muscles of Mastication:*

a. The temporalis muscle arises from the temporal fossa, and the surrounding crests. It inserts on the coronoid process of the mandible. The deep portion of the masseter muscle fuses with the superficial portion of the temporalis. The anterior fibers are nearly perpendicular to the occlusal plane while the posterior fibers are nearly parallel.

b. The masseter muscle originates from the zygomatic arch and inserts on the lateral surface of the ramus of the mandible. The superficial fibers are nearly parallel to the occlusal plane while the deeper fibers are more perpendicular.

c. The pterygoid muscles arise from the crest formed by the pterygoid processes of the sphenoid and palatine bones. They insert into the medial surface of the mandibular ramus. The fibers are directed downward, backward, and laterally.

Arguments

1. The type of tissue found is not regularly located in areas of stress by compression. The mandibular fossa shows very thin bone between the mandibular fossa and the temporal fossa. This thin piece of compact bone is not the type usually found in areas of stress by compression. Bone that is meant to receive stress has an architecture of cancellous bone covered by a dense cortical plate. The condyle relative to the over-all mass of the mandible is quite small and delicate. It is not a bone that would withstand heavy forces.

2. Heavy stresses are normally developed in the mandible only when there is a definite stop in the denture area. There are two types of muscle contraction. One is isotonic, when the muscle shortens in length against a given weight, and work is done which can be measured in foot pounds. When no food is between the animal's jaws this weight amounts only to the weight of the mandible. Even with the modern day small animal diet the force necessary to bring the jaws from an open position to a tooth contact position through the bollus of food is not great. The second type of muscle contraction is isometric, that is when the two ends of the muscle are fixed. This type of contraction occurs when the animal's jaws are in a tooth contact position, or when some very hard biteable object is between the teeth. It is in this type of action that heavy stress can be developed in the jaws. No work is done. The muscle develops stress only and the energy is dissipated as heat.

3. The direction of muscle pull places the resultant force in the denture area. When speaking of component muscle forces the terms retrusive, protrusive, etc., should not be used. It is the resultant force of the integrated contraction of the muscles which is the action observed in the animal. For example, (Fig. 1) in the dog the masseter and internal pterygoid muscles pull in an approximate direction from the angular process to the upper portion of the nose. These two muscles form a sling whose angle is bisected by the temporalis muscle. The temporalis muscle could, for example, have a vector force in an approximate direction from the tip of the coro-

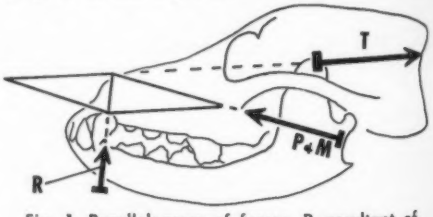


Fig. 1. Parallelogram of forces. R, resultant of components T and PM. T, component force of temporalis muscle. PM, component force of pterygoid and masseter muscles in plane of temporalis muscle.

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

noid process to the upper portion of the nose. As the temporalis bisects the angle formed by the masseter and internal pterygoid these three forces can be represented in one plane. When a force acts upon a rigid body its action on that body is independent of its attachment but must act along its line of action. Two intersecting forces acting upon a rigid body produce a resultant force which can be determined by constructing the parallelogram of forces. By this simplified example it can be seen how this sling of muscles which actuate the lower jaw can result in a resultant force which is in the denture area. If the power acts at the point of resistance, there is no lever action. How does the non-lever concept of jaw action fit the particular case? Simply that we have seen from the anatomical structures that there is no provision for heavy stress in the joint. On the other hand, the dental arches are so formed as to receive the heavy stresses of the masticatory muscles. From this simple diagram it can be seen that the teeth may receive all the stress of the muscle contraction and leave the joint entirely strain free.

4. Reflex connections and antigravity mechanism apply to the specific case at hand. As there is no provision for significant stress in the joint, it is reasonable to assume that they do not occur, although it is theoretically possible for the muscles to act in such a manner. The reflex connections and the antigravity mechanism prevent the occurrence of destructive forces. It is the temporalis muscle which equilibrates the forces so that the stress in the joint is physiologic in amount and placement. This equilibration of forces by the temporalis muscle is reflexly controlled. (Fig. 2.) The afferent pathway is via the mesencephalic root of the fifth nerve. Fibers of the mesencephalic fifth root are contained in nerves to the muscles of mastication and in the peridental membranes of the teeth of both maxillary and mandibular arches.[1] It is through this afferent pathway that the proprioceptive (or muscle, joint and tendon) sense reaches the brain stem. Unconscious sensation of the jaw's position goes to the mesencephalic fifth nucleus which is a sensory nucleus that during evolution has been incorporated into the substance of the brain. Following the simplest possible reflex arc, the proprioceptive impulses pass to the motor portion of the mandibular nerve in coordinating the muscles of mastication.

The normal "rest" position of the mandible must be thought of as an active process. There is a constant shower of impulses coming to the brain from the tension in the muscles, largely from overcoming the force of gravity. These afferent impulses reflexly control the motor fifth nucleus to maintain the jaw in the "rest" position. By this method the mandible is kept in position against gravity.

Sherrington[2] states, "On the mouth's seizing a morsel, the mandible, when it has closed, e.g., voluntarily, upon whatever is between the jaws, pressing it against the teeth, by so doing, as is clear from observation of the reflex, produces a stimulus which tends reflexly to reopen the jaws. That done, the central rebound of the previously inhibited motor neurones sets in and tends to powerfully reclose the jaws again. The reclosure brings into operation once again the jaw-opening stimulus. And so, after being started by a first bite, a rhythmic masticatory reflex tends to keep itself going so long as there is something biteable between the teeth."

Stresses are reflexly controlled. The fine coordination between all the muscles concerned are such that their resultant force is applied where they are needed in the dental arch. For example, biting a bone in the cuspid area, the masseters and internal pterygoids

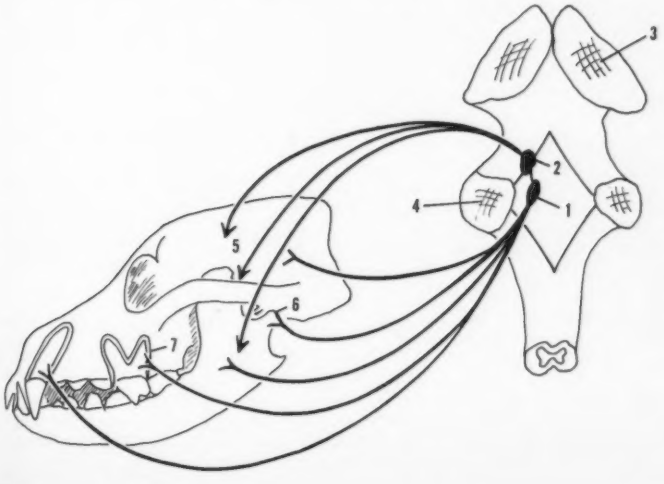


Fig. 2. Diagram of reflex control of jaw muscle forces. 1—mesencephalic fifth nucleus in floor of 4th ventricle. 2—motor fifth nucleus. 3—cut cerebral peduncle. 4—cut cerebellar peduncle. 5 — motor nerve supply to muscles of mastication. 6 & 7—unconscious muscle, joint, and tendon sensory nerves to the mesencephalic fifth nucleus.

could cause stress in the joint, and this would send impulses to the mesencephalic fifth nucleus. These impulses would reflexly control the motor fifth nucleus to activate the temporalis muscle in such a way as to relieve the stress in the joint. At the same time proprioceptive impulse comes to the center from the peridental membranes of the upper and lower cuspids and these impulses coordinate the muscles so that the resultant force is in the cuspid area.

5. How does this concept conflict with existing ideas and how do these ideas need to be changed? First and foremost is the "hand-me-down" idea of lever action. Miller[3] states "the mandible or lower jaw is V-shaped and rather massive in comparison with the remainder of the skull. It bears the lower teeth and through its articulation with the temporal bone forms a lever for grinding and shearing food." A lever is a rigid structure turning freely on a fixed point or fulcrum. (Fig. 3.)

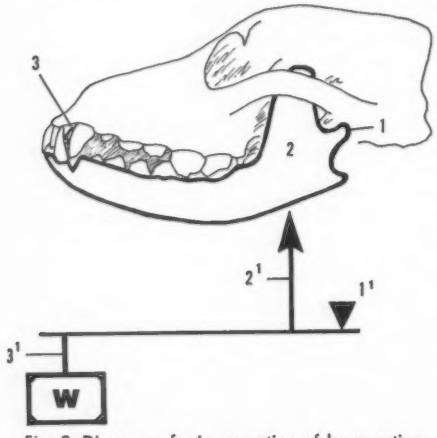


Fig. 3. Diagram of misconception of lever action of the jaw. 1 & 1¹—small condyle previously thought to be fulcrum of Class III lever. 2 & 2¹ area of jaw muscle attachments mistakingly believed to be area of resultant force. 3 & 3¹ area of resistance. (If true, more stress would be developed at 1 than at 3).

Third class levers are those in which the resultant power (not individual components) is between the resistance and the fulcrum. If this lever idea were true, and the resultant force were exerted in the region of the muscle insertions, then there would be developed in the joints approximately as much stress as in the denture. We have seen from the gross structures that there is no provision for heavy stress. On the other hand, the dental arches are so formed as to receive the heavy stresses of the masticatory muscles. When a power acts at the point of resistance, there is no lever action. Contributing to a misconception of lever action is the misunderstanding of the direction of component muscle forces. The resultant force applied to the mandible is a complex coordination of actions of the various muscles concerned. The idea of specific actions of a specific muscle should be thought of as a component of the complex action of the masticatory organ. Sisson and Grossman[4] state that the action of the masseter muscle is to "draw the lower jaw forward as well as upward." Miller[3] ascribes individual jaw action to individual muscles.

Conclusions and Clinical Implications

It is not the scope of this paper to go into the clinical implications of the reflex-controlled non-lever action of the jaw. It is self-evident that an accurate concept of mandibular function is necessary to any rational veterinary dental treatment.

Heavy stress occurs in the denture area only during isometric contraction of the muscles. In clinical practice a definite centric stop *must* be provided so that destructive forces will not occur. The anatomy of the tempromandibular joints definitely indicate that they are not stress bearing areas. The mandible is not a class III lever. The dental arches are intended to bear all the heavy stress.

This concept must not be interpreted as minimizing joint demands as definite guides to mandibular movements.

Summary

1. The concept of reflex-controlled non-lever action of the jaw is presented.

2. The anatomy of the tempromandibular joint shows that the form of the joint is not one to perform a heavy stress bearing function.

3. The jaw is not a lever of the third class. The muscles of mastication are so placed that the resultant force of their actions can be borne by the dentition and leave the joints free from traumatizing stress.

4. Heavy stress is developed in the denture only during isometric muscular contraction.

5. The normal stresses in the mandible are regulated by a positional and a masticatory reflex activity in the fifth nerve, its motor and mesencephalic nuclei.

Bibliography

[1]Corbin, K. B.: "Observations on Peripheral Distribution of Fibers Arising in Mesencephalic Nucleus of Fifth Cranial Nerve." *J. Comp. Neurol.*, 73:153, August 1940.

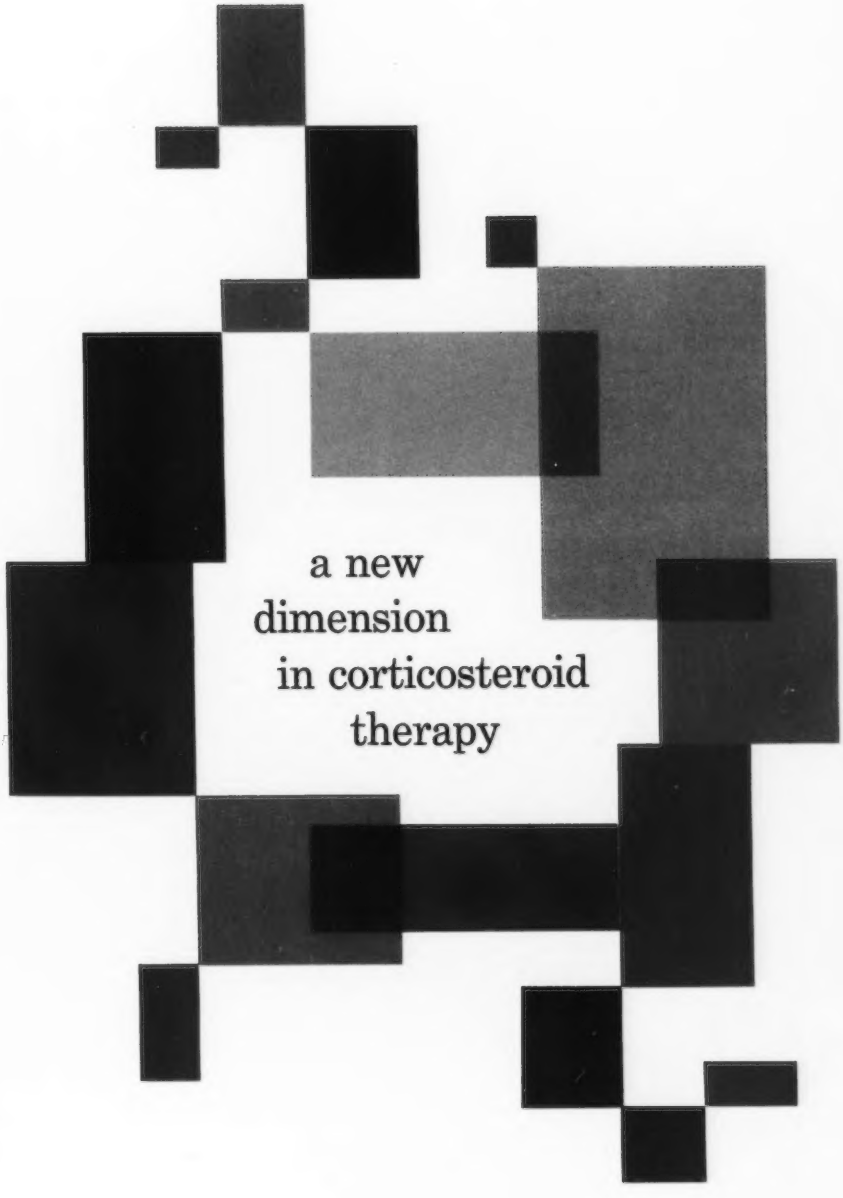
[2]Sherrington, C. S.: "Reflexes Elicitable in Cat from Pinna Vibrissae and Jaws." *J. of Physiol.*, 51:404, December 1917.

[3]Miller, M. E.: "Guide to the Dissection of the Dog." Ann Arbor, Edwards Brothers, Inc., 1952.

[4]Sisson, S., and Grossman., J. D.: "The Anatomy of Domestic Animals." 4th Ed. Philadelphia, W. B. Saunders, 1959.

Colorado VMA Meet September 3-4

The Colorado VMA will hold its annual convention September 3 and 4 at the Shirley Savoy Hotel, Denver. Persons desiring information may contact Dr. Gail H. Gilbert, executive secretary, 5500 Wadsworth Avenue, Arvada, Colo.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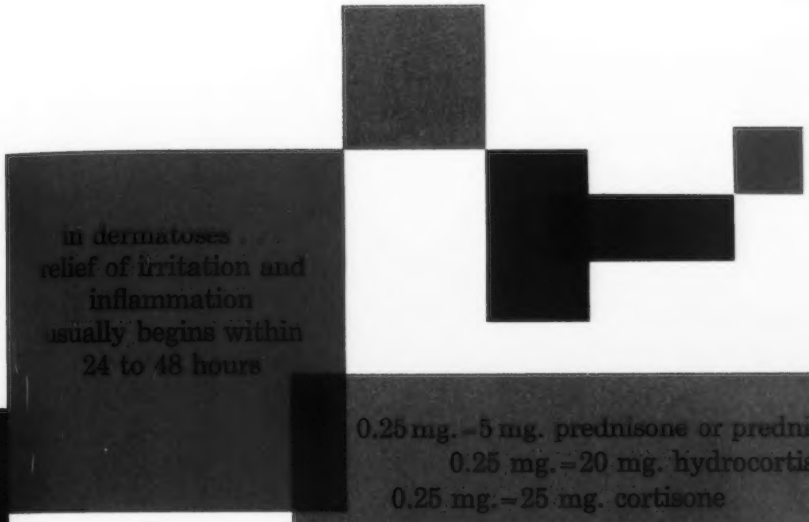

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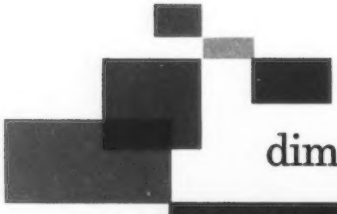

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Winners, CVMA Golf Tournament, Santa Monica

Dr. A. Mack Scott presents Dr. Rollin R. Smith with symbolic trophy for winning Low Gross.

On June 21, CVMA golfers, pharmaceutical representatives, women golfers and friends of the association held their annual tournament at Fox Hills, Culver City. Dr. A. Mack Scott of the SCVMA Hackers was chairman of the event which saw 53 players participating. Dr. Harold Snow arranged and coordinated the event.

Results

Women: Low Gross with a 91, Mrs. D. O. Anthony; Low Net, Mrs. M. A. Custer; 2nd Low Net, Mrs. J. F. Cittadin.

Men: Guests—Low Net, Frank Ryan of Kal Kan Foods, Inc; 2nd Low Net, H. Don Mahan, Executive Secretary, SCVMA.

Members: Low Gross with an 82, Dr. Rollin R. Smith; 2nd Low Gross, Dr. Raymond Sprowl; Low Net, Dr. J. F. Cittadin; 2nd Low Net, Dr. M. A. Custer.

Dr. Cittadin was awarded the SHOR-LINE perpetual trophy, given to the association to be awarded each year to the member veterinarian having the lowest net score. Mr. Carl Schoer, owner of the SHOR-LINE Mfg. Co., makers of veterinary equipment, is located in Kansas City, Mo.

Dr. Rollin Smith is the winner of the Low Gross perpetual trophy and his name will be inscribed on the trophy. Last year's winner of this trophy was Dr. Fred Walker. This trophy was donated to CVMA in 1952 by Jack Walsh of the Arrowhead Springs Hotel, now of the Desert Inn, Las Vegas.

When this trophy is won by a single golfer three times, it becomes his property. Dr. Jack Saunders and Dr. Joseph L. Geierman have won it twice.

Low Putts for the course went to Mr. Warren Kemp of Jensen-Salsbery Laboratories with 28.

Applicants

Eugene J. Brauner, Carmichael. Vouchers: Ben E. Dillon, Leland J. Bell.

J. L. Briggs, Glendale. Vouchers: Charles H. Ozanian, Richard L. Stowe.

John W. Britton, Oakdale. Vouchers: Fred B. Pulling, R. B. Barsaleau.

Robert A. Carreau, Los Angeles: Vouchers: Herbert N. Snow, Harold D. Snow.

M. A. Custer, San Diego: Vouchers: A. Mack Scott, Harold H. Groth.

George P. Thomasson, North Hollywood: Vouchers: Herbert I. Ott, N. A. Rothenberg.

Alexander C. Tong, Long Beach. Vouchers: D. K. Collins, C. C. Oderkirk.

Frank T. Wilkin, Canoga Park. Vouchers: N. A. Rothenberg, Herbert I. Ott.

Herman Schnitker, San Jacinto. Vouchers: M. C. McSpadden, Jay Wallis.

Ben H. Dean, Piedmont: Vouchers: Joseph M. Arburua, R. E. Duckworth.

Robert L. King, Santa Clara. Vouchers: Frank M. Patterson, Jack Pflock.

Wendell L. Johnson, Los Gatos. Vouchers: Jack Pflock, Rex Taylor.

Harry F. Blanchard, San Jose. Vouchers: Frank M. Patterson, W. L. Vowles.

Russell L. Green, Los Angeles: Vouchers: William K. Riddell, William H. Huntley.

The Treatment of Superficial Fungus Infections in Man with Griseofulvin*

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RONALD M. REISNER, M.D., RICHARD S. HOMER, M.D.,
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Griseofulvin, a recently introduced orally administered antibiotic, has shown considerable promise of being an effective agent for the treatment of many heretofore recalcitrant dermatophytic infections of both man and animals. This paper briefly reviews the pertinent literature to date, and presents a summary of our experiences[1] with the treatment of 92 patients with a variety of superficial fungus infections.

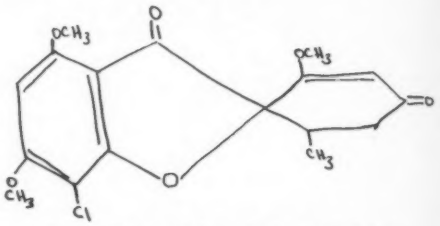

Fig. 1. Structural formula for griseofulvin.

Review of Literature

Griseofulvin was first isolated by Oxford, Raistrick and Simonart in 1939 from *Penicillium griseo-fulvum* Dierckx.[2] It is a colorless, crystalline, neutral compound having a melting point of 218-219°C., and an empirical formula of $C_{17}H_{17}O_6Cl$.[2] The structural formula[3,4] is shown in Figure 1. The compound is soluble in water at room temperature to the extent of about 10 micrograms per milliliter,[5] and is relatively thermostable showing no loss of activity following autoclaving at 20 pounds per square inch of steam pressure for 20 minutes.[6] A substance identical to griseofulvin was isolated independently by Brian et al.[7] in 1945 and named the "curling factor" because of the characteristic spiral effect it produced on the growth of the hyphae of certain fungi.

Griseofulvin in concentrations of 0.1 to 0.4 micrograms per milliliter is highly active *in vitro* against several pathogenic fungi infecting the skin of man and animals.[8,9] These fungi include *Microsporum canis, Microsporum gypseum, Microsporum audouini, Epidermophyton floccosum, Trichophyton tonsurans, Trichophyton mentagrophytes, Trichophyton megnini, Trichophyton gallinae,* and *Trichophyton rubrum.* Bacteria and fungi producing systemic infections in man, including *Cryptococcus neoformans, Blastomyces dermatitidis, Blastomyces brasiliensis, Histoplasma capsulatum* and *Candida albicans* are not inhibited by concentrations of griseofulvin up to 30 micrograms per milliliter.[9]

The lethal dose of griseofulvin has been found to be relatively high in laboratory mammals.[5,10] Rats tolerate a daily dose of two grams per kilogram given intraperitoneally for several days. However, Paget and Walpole[5] who sacrificed animals receiving such dosages after four days and examined their tissues histologically found severe damage to the seminal epithelium, with many areas of complete necrosis. After a single intravenous dose of 100 to 200 milligrams per kilogram a striking arrest of mitoses in the metaphase occurred in sites of mitotic activity (colchicine-like effect), particularly in the bone marrow and the intestinal tract. This was reflected in the peripheral blood by a profound fall in the total number of circulating red blood cells and white blood cells. The bone marrow appeared congested and contained little hematopoietic tissue. In spite of these laboratory changes, however, the rats appeared clinically to be little affected. The injured tissues proceeded rapidly toward recovery within 24 hours, although the effects of interference with spermatogenesis were still discernible in the testes for at least ten days after a single injection.

Williams et al.,[10] commenting on these findings, point out that the toxicity of griseofulvin when administered to animals orally is very low, in that a single dose of 50 grams per kilogram is not lethal to mice, and further that the effects mentioned by Paget and Walpole[5] have not been observed in animals maintained for long periods of time on oral doses of griseolfulvin far in excess of those needed to produce a therapeutic effect.

Gentles[11] experimentally infected guinea pigs with *M. canis* and treated them ten days later when lesions were well developed and infected hairs fluoresced brightly when observed with the Wood's light. They were given orally 60 milligrams per kilogram of griseofulvin daily and the subsequent course of the infection was compared to a suitable control group. Beneficial effects were observed within four days. The highly inflammatory reaction which developed in the control animals was prevented. Few infected hair follicles could be found by the eighth day of treatment, whereas in the control group of animals almost all of the hair follicles were still heavily invaded with the organism. Similar experi-

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

ments demonstrated that griseofulvin was equally effective when *T. mentagrophytes* was used as the infecting organism. More recently Martin[12] has confirmed these findings with regard to infections due to *T. mentagrophytes*, and also found the local application of griseofulvin in a one per cent concentration in arachis oil to be effective. Lauder and O'Sullivan[13] prevented and cured experimental infections of calves with *Trichophyton verrucosum* by drenching each animal daily with a saccharine suspension of griseofulvin which the calves subsequently licked and presumably swallowed. The estimated daily dose was 60 milligrams per kilogram of body weight.

A possible explanation for the action of griseofulvin in animals and man has been proposed by Gentles et al.[14] They postulated that griseofulvin is deposited in the keratin layer of the epidermis and penetrates into the hair follicles where it is somehow incorporated into the newly formed keratin of the emerging hair shaft, since between five and six micrograms of griseofulvin was isolated from each one gram of hair obtained from guinea pigs receiving orally 30 to 40 milligrams of griseofulvin per kilogram per day. It was concluded that "it seems fairly certain that the eradication of dermatophytic infection by griseofulvin is due to its incorporation somehow in keratinous tissue."

These studies stimulated considerable interest in the possible use of griseofulvin for the treatment of fungus infections in man, and several preliminary clinical studies have recently appeared almost simultaneously in the literature.

Williams et al.[10] have treated nine patients with *T. rubrum* infections of the skin or nails with 0.5 grams of griseofulvin four times a day orally. Rapid relief of itching occurred where it existed, and sweating of the palms reappeared where it had been absent for many years. Infected nails appeared to be growing out with regular increases in normal nail tissue. Hyperkeratosis of the skin of the palms disappeared in two or three weeks, and the fungus became increasingly difficult to find in the scrapings and was often absent within two weeks from skin with a relatively thin horny layer. One patient with tinea capitis due to *M. audouini* was treated and was clinically cured after three weeks of therapy. No side effects were observed except possible indigestion in one patient and thirst in two others.

Riehl[15,16] has reported 15 patients with superficial mycoses including three patients with onychomycosis in which treatment was preceded by extraction of the nails. Healing occurred in all cases without accompanying local therapy. A single case of nodular mycosis on the anterior tibial region was treated with griseofulvin, with relief of all symptoms within six days. No toxicity was observed.

Blank and Roth[9] have reported their preliminary observations on the effectiveness of oral griseofulvin therapy. They have treated 31 patients with infections of the skin, nails and/or hair due to *T. rubrum, T. mentagrophytes, T. tonsurans, M. audouini, M. canis, E. floccosum, C. albicans, B. dermatitidis* and *Malassezia furfur* with one to five grams of griseofulvin daily. The drug was found to be effective in the treatment of infections due to *T. rubrum, T. mentagrophytes, T. tonsurans, M. audouini, M. canis* and *E. floccosum*, but ineffective against *C. albicans, B. dermatitidis* and *M. furfur*. Repeated cultures at 72-hour intervals in most instances became negative in about two weeks or less. Direct KOH preparations became negative in about two weeks. Cultures of hair and nails remained positive until the abnormal infected material was naturally or mechanically removed. One possible relapse was observed in a patient with granulomas due to *T. rubrum*. A peculiarly resistant three centimeter scaling area subsequently developed in this patient from which the organism could be repeatedly cultured. In most cases of tinea corporis, pruritus subsided within the first three to five days of treatment, and the lesions disappeared in from one to two weeks. Tinea pedis showed improvement in from one to two weeks, but required as much as three to four weeks or longer to clear. Tinea capitis improved in two to three weeks but required more prolonged treatment in some cases. Onychomycosis required from three to four months to clear but new normal nail growth was observed earlier. A daily dose of one gram appeared to be adequate in most cases.

Adverse reactions included one instance of urticaria which developed in a patient who had received griseofulvin for six weeks, and several instances of self-limited mild abdominal distress or headache. No evidence of antimitotic effect was observed. Griseofulvin could not be detected by direct bioassay in the serum of patients receiving the drug. However, using the same technique more than 50 per cent of the orally administered drug could be detected in the urine.

Material and Methods

Griseofulvin was administered to a total of 92 patients including 35 patients with tinea capitis due to *M. audouini* (22), *M. canis* (11), *T. tonsurans* (1) and *E. floccosum* (1); 52 patients with infections due to *T. rubrum* involving the glabrous skin, palms, soles, fingernails and/or toenails; three patients with infections due to *T. mentagrophytes;* one patient with a mixed infection due to T. *mentagrophytes* and *E. floccosum*, and one patient with onychomycosis due to *T. tonsurans*. The drug was administered orally in all instances, with the dosage adjusted according to the patient's weight. Two hundred and fifty milli-

grams of griseofulvin* was given four times a day to patients weighing over 60 pounds and 20 milligrams per day for patients weighing less. Adjunctive measures such as shaving of residual infected hairs, removal of nails, and exfoliation of palms and soles using a 40 per cent salicylic acid plaster** were employed in a few cases.

Patients were seen at weekly intervals and carefully observed regarding any evidence of toxicity. Serial blood counts and other laboratory studies were also obtained. Therapy was discontinued when no further clinical evidence of the disease was discernible.

Results

1. Tinca capitis (35 patients)

All of the 22 patients in whom the infective organism was *M. audouini* showed a favorable response in a period of from two to four weeks, with 18 of these patients manifesting "clinical cure" (subsidence of erythema, scaling and induration, disappearance of fluorescence of the infected hairs, and definite evidence of return of normal hair growth). In general, onset of improvement occurred within two to four weeks, with clinical cure taking place in from three to nine weeks, most patients showing clinical cure in from four to seven weeks. There has been no evidence of recurrence to date.

Eleven patients with tinea capitis due to *M. canis*, including ten children and one adult female, have been treated, with eight patients showing "clinical cure" and the remainder showing varying degrees of improvement. In general, onset of improvement was noted in from one to two weeks and clinical cure was achieved in from two to seven weeks. There has been no evidence of recurrence to date.

In the one case of tinea capitis due to *T. tonsurans*, cure was achieved following eight weeks of therapy and no recurrence has been observed to date.

In the patient with a severe extensive favus-like infection of the face, scalp, eyelids and ears due to *E. floccosum*, the condition had been present for approximately three years. Complete and dramatic healing of all lesions was observed after 27 days of griseofulvin therapy. Follow-up observations three months later have revealed no evidence of recurrence.

2. Infections due to *T. rubrum* (52 patients)

Of these, 14 had involvement of the glabrous skin, 22 had involvement of the palms, 35 had involvement of the soles, 35 had involvement of the toenails and 20 had involvement of the fingernails. Improvement has occurred in all patients in whom treatment has been continued for a sufficient period of time to allow replacement of the involved tissue by new normal tissue.

In general, improvement of the glabrous skin as manifested by subsidence of pruritus and rapid disappearance of erythema, scaling and induration, has been noted within 24 to 48 hours, and complete clearing in from two to four weeks. In infections of the palms and soles improvement is noted in from one to two weeks as manifested by subsidence of pruritus and gradual disappearance of hyperkeratosis, erythema, scaling and anhidrosis. Clinical clearing is noted within two to eight weeks.

Infections of the fingernails and toenails have required the longest time for cure and, to date, only three patients have shown complete replacement of the diseased fingernail by normal nail. However, all cases of nail involvement have demonstrated some degree of clinical improvement. The three patients showing complete replacement of diseased nail by normal fingernail received one gram of griseofulvin daily over periods of 78, 82 and 88 days respectively. During this same period of time involved toenails in these patients were only one-third replaced by normal appearing nails. In general, complete replacement of fingernails by new normal nails requires from three to four months, and it is estimated that replacement of toenails will require from six to nine months in most patients.

Our data concerning the treatment of patients with infections due to *T. mentagrophytes*, *T. tonsurans* and *E. floccosum* show that, in general, they respond similarly to *T. rubrum*.

Toxicity

Clear-cut clinical or laboratory evidence of toxicity necessitating the permanent discontinuation of therapy has not been encountered. Minor transient complaints, as noted in Table I, have been observed. In addition, there was noted in one patient development of generalized pruritus associated with a diffuse macular eruption, and in another, development of several small urticarial lesions on the lower extremities. Both reactions required temporary discontinuation of therapy. No significant abnormalities were observed in any of the series of laboratory studies obtained throughout therapy.

Discussion

In general, our findings corroborate the favorable clinical reports published to date[9,10,15,16] concerning the use of griseofulvin in the treatment of superficial fungus infections in man and animals. On the basis of our current experience griseofulvin appears to be a significant major advance in the management of tinea capitis due to *M. audouini*, *T. tonsurans*, and resistant cases due to *M. canis* and in the management of infections of the palms, soles, fingernails and toenails due

*Supplied as Grifulvin® through the courtesy of Gavin Hildick-Smith, M.D., Associate Director of Clinical Research, Johnson and Johnson, and later through McNeil Laboratories, Inc., as compressed tablets containing 250 milligrams of griseofulvin.

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to *T. rubrum*. The fact that the infective organism can be cultured from infected tissues until it is naturally cast off or mechanically removed suggests that concomitant measures such as clipping the infected portions of the hair, applications of topical fungicides, and filing or surgically removing infected portions of the nails will continue to play an important role as adjunctive measures. Finally, the necessity and importance of proper cultural identification of pathogenic fungi prior to the institution of therapy with griseofulvin can hardly be stressed strongly enough.

TABLE I

Toxicity encountered during therapy of 92 patients with griseofulvin:

Complaints	No. of Patients
Blurring of vision	1
Diarrhea	1
Nausea	3
Mild malaise	2
Numbness of toes	1
Urticaria	2
Localized vesicular eruption	1
Diffuse macular eruption	1
Generalized pruritus	2
Headache	3
Dryness of mouth	2
Polyuria	1
Thirst	1

Bibliography

[1]Newcomer, V. D., Sternberg, T. H., Reisner, R. M., Homer, R. S., Sorensen, L. J., and McNall, E. G.: "Superficial Fungus Infections in Man Treated With Griseofulvin." In Press

[2]Oxford, A. E., Raistrick, H., and Simonart, P.: "XXIX. Studies in the Biochemistry of Microorganisms. LX. Griseofulvin $C_{17}H_{17}O_6Cl$, a Metabolic Product of *Penicillium Griseo-fulvum* Dierckx," *Biochem. J.*, 33:240-248; 1939.

[3]Grove, J. F., Ismay, D., MacMillan, J., Mulholland, T. P. C., and Rogers, Thorold, M.A.: "The Structure of Griseofulvin," *Chem. and Ind.*, 11:219; (March 17) 1951.

[4]Grove, J. F., MacMillan, J., Mulholland, T. P. C., and Rogers, Thorold, M.A.: "Griseofulvin. Part IV. Structure," *J. Chem. Soc.* (Lond.), pp. 3977-3987; 1952.

[5]Paget, G. E., and Walpole, A. L.: "Some Cytological Effects of Griseofulvin," *Nature*, 182:1320-1321; (November 8) 1958.

[6]Brian, P. W.: "Studies on the Biological Activity of Griseofulvin," *Annals of Botany* (N.S.), 13:59-77; 1949.

[7]Brian, P. W., Hemming, H. G., and McGowan, J. C.: "Origin of a Toxicity to Mycorrhiza in Wareham Heath Soil," *Nature* (London), 155:637; 1945.

[8]"Fungicide by Mouth," Leading Articles, *The Lancet*, p. 1216; (December 6) 1958.

[9]Blank, Harvey, and Roth, Frank J.: "The Treatment of Dermatomycoses with Orally Administered Griseofulvin," *A.M.A. Arch. Dermat.*, 79:259-266; (March) 1959.

[10]Williams, D. I., Marten, R. H., and Sarkany, I.: "Oral Treatment of Ringworm with Griseofulvin," *The Lancet*, pp. 1212-1213; (December 6) 1958.

[11]Gentles, J. C.: "Experimental Ringworm in Guinea Pigs: Oral Treatment with Griseofulvin," *Nature*, 182:476-477; (August 16) 1958.

[12]Martin, A. R.: "The Systemic and Local Treatment of Experimental Dermatophytosis with Griseofulvin," *J. Invest. Derm.*, 32:525-528; (April) 1959.

[13]Lauder, I. M., and O'Sullivan, J. G.: "Ringworm in Cattle. Prevention and Treatment with Griseofulvin," *Veterinary Record*, 70:949-951; 1958.

[14]Gentles, J. C., Barnes, M. J., and Fantes, K. H.: "Presence of Griseofulvin in Hair of Guinea Pigs After Oral Administration," *Nature*, 183:256-257; (January 24) 1959.

[15]Riehl, G.: "Griseofulvin ein peroral wirkendes Antimykotiku," *Der Hautarzt*, 3:136; 1959.

[16]Riehl, G.: "Griseofulvin als peroral wirksames Antimykotikum," *Klinische Medizin*, 3:131; 1959.

Ethics Committee Report

Your Ethics Committee, consisting of Drs. C. H. Reid, W. L. Kanawyer, C. A. Maeda and T. D. Harris, has had an active year. Each complaint has been carefully scrutinized and handled in a diplomatic manner, without undue embarrassment to any of the members involved. Your committee functioned under the assumption that the alleged defender could have been himself; that the accused veterinarian is a colleague; and that the case could be one of misunderstanding between neighboring colleagues.

The subject of ethics is one that everyone discusses and has numerous interpretations. Its elasticity can be stretched as far as one pleases to fit the situation. In substance, it is the deviation of one's professional conduct from that of his colleagues. In essence, it is the Golden Rule.

The modus operandi of your ethics committee this past year has been to require complaints to be presented by the executive committee of the local associations, assuming that all negotiations had failed on the local level. The complaint was subsequently screened to determine whether any legal aspects of the practice act was violated. The alleged defender was then notified of the accusations in writing, requesting a written reply. The complaints were disposed of through the medium of telephone conversations, individual interviews, contacts by neighboring colleagues acting as a disinterested third party, and finally, when necessary, a hearing by the ethics committee in the presence of all the interested parties. The majority of the disputes and grievances were harmoniously settled by your committee by instigating a frank discussion of the controversy with those concerned.

It is recommended by your ethics committee that each local association develop an active ethics or grievance committee.

Only if and when arbitration fails on the local level should the CVMA ethics committee be committed to solve local problems. Similarly, the CVMA should refrain from soliciting assistance from the AVMA ethics committee until all avenues of arbitration have failed on the state level. Too often ethics problems are referred away from the locale of the alleged violation with the anticipation that settlement will be forthcoming through "remote control." Local problems can best be solved on a local level.

Respectfully submitted,

C. H. OZANIAN, D.V.M., *Chairman*

Report of the Legislative Committee

We had a very satisfactory and a most interesting legislative session. Some half dozen measures came to our attention that we thought deserved action on our part.

(1) The first was the recommendation of the membership that a bill be presented to equalize or adjust the per diem payment of the members of the Board of Veterinary Examiners. This was presented by Senator Luther Gibson as SB 948 and was passed. It was presented as a measure covering several boards, not just the Board of Veterinary Examiners.

(2) It was also recommended last year that a bill be formulated to empower the Board of Veterinary Medical Examiners to set up standards of ethical practices. At any time such practices were violated there would be a legal basis for processing complaints. Upon presenting this to Senator Gibson, the Senator felt that it would be inadvisable to present such a measure. It appeared to him to be a measure conceived in selfishness. In other words, for the interests of the veterinary profession rather than for the public as a whole. He countered that if we were interested in modifying our practice acts that specific proposals should be presented and they'd be considered, one by one.

(3) For the remainder of the legislative session we acted defensively. One of the bills to come to our attention was AB 2165 pertaining to rabies vaccination. This was an effort on the part of the so-called "Dog Lovers" to exempt certain dogs from the rabies vaccination. Dogs kept under confinement were supposed to be exempt. The measure was amended by the Assembly Committee by deleting significant lines. Dr. Humphreys of the State Department of Health spoke effectively against the bill. After the committee meeting the sponsors asked that the measure be put under study rather than be pushed through the Legislature in its emasculated form.

(4) AB 2437 by Hanna, the usual biennial effort of individuals to become professional men by legislation rather than by education, was tabled without requiring us to speak.

(5) One final measure came to our attention through a phone call from Ken Humphreys. It was a last minute effort to limit group insurance of professional associations to $10,000. In its final form the medical profession, bar association and the few that were consulted in the veterinary membership all felt that it was in very satisfactory form, and it does not affect our present insurance program.

One of the primary reasons why we were so successful this year was that we had unusual cooperation from the areas which the legislators represented. Another reason was that we were surrounded by friends. We had Dr. Stiern in the Senate. Members of the Departments of Health, Agriculture and the Bureau of Professional Standards gave us counsel. Thirdly, our reasons were well formulated when we presented or opposed a measure. Our reasons were expressed in the light of public interest rather than selfishly. We also had resident representation by the Public Health League and Mr. Read.

Membership in the Public Health League is costing us $1.00 per member at present. In this session there was one minor bill which was presented for one industry for which $10,000 was required before a lobbyist would even touch it. We were equally successful on equally important measures without such an expenditure of funds. Ben Read's understanding of legislative procedures certainly was a great help to us on every occasion. The Public Health League speaks for from 75,000 to 100,000 professionally minded people in the state.

President Stowe stated that we are participating in the Public Health League again next year. In 1960 we can be prepared to take care of our legislative needs in a more facile manner. Loyal members, especially Southern Californians, have shown the way. A word from one of his constituents means a lot to a legislator and your prompt action in advising your representative of your views got results. In the year ahead, see to it that you become acquainted with your legislator. Let's make a friendly contact with him, either in business, or socially. Make it a point not to influence him, but to know him and to have him know you and remember you—favorably.

We can also give our thoughts to what changes in statutes might be desirable. Any suggestions you have will be gladly received by any member of the executive board or the legislative committee. Don't be offended if your suggestion dies on the vine. To gain support and to carry out an advance, proposals have not only to be desirable to the profession as a whole, but should lend themselves to general favor, or at least be unobjectionable to the public as a whole. Nothing succeeds like success. To champion measures which invite defeat is a luxury we can ill afford.

ROBERT ORMSBEE, D.V.M., *Chairman*

Virus Diseases On Increase

According to Dr. D. G. McKercher, a virus authority at the School of Veterinary Medicine, Davis, virus diseases of cattle are on the increase in the United States. Some of these are virus diarrhea, mucosal disease, infectious bovine rhinotracheitis, catarrhal vaginitis and coital vesicular exanthema.

"Should these diseases be of great potential danger to the livestock industry," he said, "it will become increasingly difficult to bring them under control."

Public and Professional Relations Committee

The Public and Professional Relations Committee met at noon, June 22, 1959, at the Miramar Hotel in Santa Monica.

A discussion was held on ways and means of encouraging the 175 regulatory and faculty personnel into joining the state association. As a first step, an attempt will be made to determine the actual reasons more of the group are not members. The chairman was appointed to contact regulatory personnel and Dr. P. C. Enge was asked to contact faculty personnel. The idea was advanced that the association should be concerned with the welfare of *all* veterinarians and be composed of *all* veterinarians.

Dr. Ozanian suggested that the area of large animal practice economics should be studied. The chairman stated he was attempting to develop an article on this matter in an attempt to stimulate lay interest and thinking on the matter.

The possibilities of awarding a college scholarship by the association to a deserving 4-H or F.F.A. member was discussed. It was tabled for future consideration.

It was stated that a questionnaire had been mailed out asking for views on creating a registered veterinary nurse classification. As results were not available the matter was tabled for future consideration.

Dr. Carroll and Dr. Vierheller were present and the speaker's bureau was discussed. The bureau is well organized but it was recommended that the entire membership be on the alert for speaking opportunities for these men. We should make a determined effort to get these veterinary practitioners before the public.

JOHN B. CARRICABURU, D.V.M., *Chairman*

Ways and Means Committee

The major effort of the committee this year has been to work with Dr. Parshall and his House of Delegates committee in making the necessary alterations to our constitution and by-laws in order to set up a representative form of government which you have before you today. This group will be known as the House of Delegates.

We have also attempted to further our liaison between groups with interests similar to our own.

For our future growth and development of the CVMA we make these recommendations:

1. In the matter of dues, the Ways and Means Committee is of the opinion that dues for all active members of the CVMA should be the same.

2. The committee has recommended that the executive committee invite a report in person or by letter from the CVMA Women's Auxiliary in order to develop good liaison between these groups.

3. The committee recommends to the executive committee that a Budget and Finance Committee be created in accordance with Article 16, Section 2. And, further, that the executive committee study the advisability of making this a standing committee.

4. The committee recommends to the executive committee that a category of life membership be established along the following lines: (a) Continuous membership of at least 25 years in the CVMA and (b) faithful service to the association and to the profession.

5. Change in the date of payment of dues. Suggest that a change in by-laws be studied and considered to make payment of dues coincide with the fiscal year, or, to set up on a calendar year basis.

PHILIP C. OLSON, D.V.M., *Chairman*

Membership Committee

Our membership is increasing! The pendulum is swinging positively!

Following the recent increase in dues we experienced a decline in members. However, we are pleased to report to you that again our association is building. The following recapitulation of the past few years portrays this quite well:

	Gross increase
1953-54	105
1954-55	103
1955-56	107
1956-57	110
1957-58	93
1958-59	123

To give you a more accurate idea of how well we are growing, until last year it was policy to retain delinquent members for an extended period of grace; however in June of 1958, 80 delinquent members were dropped —hence, if we add the 80 to the gross increase of 123, we come up with a total gross increase of 203. It can be readily seen that the "recession" is a thing of the past. We *are* growing!

Two factors will favor steady and speedy growth this year: First, the installation of our House of Delegates form of government will stimulate constituent associations to see that their members are also paid up with CVMA; second, the Pennsylvania association will present a resolution to the AVMA Convention in August proposing that every member of the AVMA must first be a member in good standing in his own state association. This is an *excellent* proposal and warrants everyone's support. It will, of course, aid every state in increased membership.

We should be constantly aware of the need for greater support of the CVMA and the AVMA.

R. L. COLLINSON, D.V.M., *Chairman*

The Canine Stifle Joint*

RALPH C. VIERHELLER, D.V.M., *Practitioner, Whittier*

The stifle joint appears to be the weakest link in the over-all stability of the dog's skeletal system. It presents articular surfaces that are wondrously mismatched. Without the menisci to fill out the defect between the femoral condyles, which are rounded, and the tibial condyles, which are flat, the bearing surfaces would present a ridiculous lack of congruity.

In spite of the improvement between the articular surfaces rendered by the menisci, the femoral condyles articulate largely with the back of the tibial condyles. The femoral condyles are kept from rocking over the anterior extremities of the menisci by a forward shifting of these structures when the joint is extended. Meniscal movement is limited by anterior and posterior tibio-meniscal ligaments. The lateral meniscus has an additional posterior femoro-meniscal ligament. Tying the menisci together anteriorly is an inter-meniscal ligament. All of these structures are necessary to compensate for the lack of a glenoid cavity at the head of the femur.

When performing an arthrotomy or a dissection of the stifle, the lack of compactness as compared to other articulations of the body is striking. The large amount of nearly useless space behind the middle patellar ligament is filled only with a pad of connective tissue and fat. The anterior limits of the tibial condyles seem to have no other purpose than to hold the tibial tuberosity out far enough to give the quadriceps muscle group good leverage. Another peculiarity of the lateral tibial condyle is its fairly large non-articular portion between the femoro-tibial and tibio-fibular articulations. A movie will be shown in which this anatomical feature is used to advantage.

Fore and aft movement of the stifle as well as rotation is limited by the cruciate ligaments. The anterior cruciate ligament is the shorter and thicker of the two. It is the one most subject to strain on over-extension or rotational movement. This may account for the frequency of anterior cruciate ligament rupture in straight stifled breeds such as boxers and poodles. The anterior cruciate has the more poorly developed blood supply; a factor in its failure to heal readily after injury.

The fibro-cartilaginous composition of the menisci make these structures subject to the hazard of tearing along the lines of the fibers. Often, when performing anterior cruciate reconstruction, the anterior ends of the crescent shaped menisci are found to be bent upward from the tibial condyles, especially the medial meniscus. In most cases, tears, bending and other abnormalities of the menisci are probably secondary to rupture of the anterior cruciate ligament. It has been demonstrated experimentally that injuries to the menisci produce no symptoms when the cruciate ligaments are intact.[1] However, when the cruciate ligaments are severed, meniscal breakdown becomes evident within fifty days.

The clicking sounds on movement emitted by stifle joints of dogs, that have suffered anterior cruciate rupture, is due to a loosening of the menisci. The anterior subluxation of the tibia on movement tenses the joint capsule to which the menisci are atttached. This lifts the menisci abruptly from the head of the tibia creating a sound much like the forceful release of a suction cup. Anterior cruciate repair alone will sometimes stop the clicking, but it is probably wiser to remove the loose ends when operating upon these cases. Should a case continue to make clicking sounds post-surgically, the surgeon may find it embarrassing.

Observation of several cases of anterior cruciate ligament rupture in dogs that also have a medially luxating patella of the same joint suggests a possible relationship. Perhaps the torsional strains produced by the intermittent dislocations are a causative factor. These cases can be handled nicely by doing a slight modification of the Paatsama Operation. The fascia lata strip is prepared so that it attaches to the patella. The strip is directed into the joint through the lateral epicondyle thus automatically becoming a lateral patellar ligament as well as a new anterior cruciate ligament.

Other genual afflictions of note include the following: Fixed mal-position of the patella (ectopic patella). Avulsion of the tibial tubercle.[2] This entity has been described as occurring either from trauma or from congenital weakness as in Osgood-Schlatter disease of children. Osteo-arthritis occurs as a result of uncorrected mechanical damage to the stifle and from other causes. Rupture of the lateral ligaments occasionally results from trauma. The simple operation of fixing the condyles with wire wrapped around two screws is remarkably successful in repair of these cases.[3] Sprain of the common tendon of the sartorius and gracillus muscles has been described as a cause of lameness in the larger categories of gun dogs.[4]

Diagnosis of stifle joint abnormalities includes visual, manual and x-ray examination. The dog should be observed standing in order to detect abnormal abduction or adduction and for evidence of less than normal weight bearing. On movement, one should note forward or backward extension of the limb, turning inward or outward of the stifles or hocks,

(Continued on page 46)

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

Some Observations on Diagnosis and Treatment of Respiratory and Digestive Tract Conditions in Pet Birds*

LAWRENCE MINSKY, D.V.M., *Practitioner, San Gabriel*

Respiratory conditions are caused by viruses, bacteria and fungi. The symptoms exhibited vary. Quite commonly visible dyspnea can be noted. The apparent labored effort to breathe on the part of the bird is evidenced by the forced heaving of the entire body and the bobbing of the tail. Rattling, clicking or wheezing sounds are not infrequently heard. Nasal discharge in the parakeet is uncommon, but is seen fairly often in the parrot. Sinusitis, observed as puffed areas around the eyes, is noted more in the canary and parrot than in the parakeet. Autopsy lesions often observed in birds that succumb to respiratory diseases include pneumonic areas in the lungs which appear as grayish irregularly shaped spots. Air sac infections which might range from slightly milky air sac membranes through creamy or caseous exridate, to large hard yellow masses in the air sacs are not unusual. Exridate when found in sinuses varies from a mucid fluid to rubbery yellow masses.

Digestive tract conditions are believed to be mainly of viral and bacterial origin. The most common symptoms noted are diarrhea and to a lesser extent vomiting. One need hardly mention listlessness and inappatence which are commonly noted in any sick bird regardless of the reason.

Autopsy lesions are not readily discerned and are confined mainly to the intestines.

Frequently symptoms involving both systems are exhibited by a sick bird and should be treated accordingly.

Drugs will be discussed in two general groupings, oral and injectible. Dosage will be primarily in reference to the parakeet.

Among the products used orally, the tetracuclines are of considerable value. The particular products used and found worthwhile are aureomycin (Lederle), terramycin (Pfizer), polyotic (Lederle), and tetracycline (Pfizer). These are all powders soluble in water. However, they precipitate to some extent and form encrustations on the water receptacle. More disturbing is the fact that they are all tinted and the color imparted to the water tends to reduce water consumption. Dosage used is 25 mg. in ¾-oz. drinking water with the hope the bird will consume 5-10 mg.

Liquamycin (Pfizer) is a stable aqueous solution of oxytetracycline hydrochloride having an amber color and when placed in water at the rate of 25 mg. (1 cc.) in ¾-oz. of water there is only a slight color imparted to the water. This product has the added advantage of being usable directly, undiluted, with a medicine dropper at the rate of two drops four times daily. This is approximately 16 mg. but probably about one-half of this amount is actually swallowed.

Chloromycetin palmitate (Parke-Davis) is a creamy liquid suspension and should be administered directly with a medicine dropper. The dosage is two drops four times daily. Again this is approximately 16 mg. but only about one-half is actually swallowed. This product does not lend itself to administration in the drinking water.

Biosol (Upjohn), which contains neomycin sulfate, is a white powder which dissolves readily in water resulting in a colorless solution. This product is found to be especially useful in the enteric diseases. The dosage used is ½ level teaspoonful (25 mg.) in ¾ oz. of water.

A brief word about the equipment and mode of administration used for injectibles might be helpful. It is suggested that ¼ cc. or ½ cc. syringes calibrated in .01 cc. increments be used. A 23-gauge hypodermic needle seems optimum to permit free passage of materials used and yet small enough to cause a minimum of trauma. Great care should be exercised to make sure needles are sharp and have no "burrs" on the points. Injections should be made deeply into the pectoral muscles.

Chloromycetin intramuscular has been found effective and well tolerated. The contents of a 1-gram vial is placed in suspension with 4 cc. of sterile injectible water. The dosage used is .05 cc.-.1 cc. (25.-5-25 mg.) as a single dose or 5-10 mg. daily for three or four days.

Tetracycline intramuscular or Liquamycin solution is used as a single dose or daily in 5 mg. amounts given intramuscularly.

Since sick birds seem to deplete nutritionally quite rapidly, it is very helpful to give an adequate vitamin supplement. A good multiple vitamin pediatric drop seems to fill the need admirably. It may be administered in the water at the rate of 5-10 drops per day. If the bird is not drinking enough water or not at all, it must be given directly with a medicine dropper at the rate of 1-2 drops twice daily. B-complex injectible is nearly always given with the injectible antibiotics in the same injection. Parakeets seem to tolerate an injection of .25 cc. volume without difficulty.

Needless to say a great many factors such as drafts, rapid drops in temperature and sudden changes in environment predispose pet birds to disease. Likewise good nursing, careful administration of drugs and temperature control help in the recovery of sick birds. A temperature between 75-80 degrees F. seems to be about right. Vaporizer treatments are very helpful in relieving respiratory symptoms.

*Presented at the CVMA Convention, Santa Monica, June 21-23, 1959.

LABORATORY NOTES

From the Department of Clinical Pathology, School of Veterinary Medicine, University of California

The Anemias

Anemia is a reduction below normal of the erythrocyte number and/or hemoglobin concentration per unit volume of blood. Anemia is rarely a primary disease but generally reflects a secondary development associated with a disease process remote from the tissues of production and destruction of erythrocytes.

Anemia is not a satisfactory diagnosis for a disease. The existence of anemia presents a challenge to the clinician to determine the underlying cause. Treatment is not to be directed at the anemia *per se*, except as an emergency measure, for such an approach will result in failure to diagnose and treat the primary disease.

Anemia develops when one or a combination of the following is operative: (a) blood loss through hemorrhage or blood sucking parasites; (b) accelerated erythrocyte destruction; and (c) reduced or defective erythropoiesis.

Physiologic adjustments in anemia: The symptoms referable to the anemia are the result of reduced oxygen-carrying capacity of the blood as well as a consequence of certain physiologic adjustments designed to increase the efficiency of the shrunken erythron and reduce the work load of the heart. In hemorrhage, when one-third of the blood volume is lost in a short period, shock occurs and death may ensue. Tachycardia or excessive rapidity of the heart and dyspnoea or rapid, shallow breathing will become prominent signs. In these cases, blood transfusions or plasma expanders are indicated to prevent death. When blood is lost more slowly, as much as 50 per cent may be lost over a 24-hour period without danger to life. The slower loss permits replacement of blood volume by movement of fluids into the circulation from the tissue. In chronically developing anemia, the hemoglobin level may drop to below 50 per cent of the minimum normal without the patient revealing symptoms of anoxia unless exercised. This is because the body makes certain physiologic adjustments to compensate for the lower oxygen-carrying capacity of the blood. The physiologic adjustments consist of an increase in each of the following: heart rate, heart size, rapidity of blood flow, volume of blood circulated per heart beat, and depth of breathing. Blood volume decreases, capillaries constrict reducing the size of the vascular bed and blood viscosity is lowered as a result of a reduction of plasma proteins. As the anemia advances, the physiologic reserves may be exceeded and certain signs appear indicating an over compensation. Excessive hypertrophy of the heart leads to murmurs often heard at the apex. Reduction in plasma proteins may lead to a disturbance in the colloidal osmotic pressure of the blood to the point where edema results. Excessive constriction of capillaries leads to pallor of the mucous membranes.

Other signs in various types of anemia: Hemoglobinuria reflects massive hemolysis of erythrocytes within the blood stream. *Icterus* appears when there is accelerated destruction of erythrocytes by the spleen and reticuloendothelial system. Bilirubin, the yellow pigment resulting from hemoglobin breakdown, is produced in excess of the normal ability of the liver to excrete it and thus the tissues become discolored and the patient is said to be jaundiced. *Elevated body temperature* develops in response to a sudden destruction of large numbers of erythrocytes either by frank hemolysis or by the usual means of red cell breakdown within the reticuloendothelial cells. Thus, in hemolytic anemia an elevated temperature does not necessarily reflect an infectious process.

Bone marrow response in acute blood loss or destruction:

a. The thrombocyte number increases immediately to shorten coagulation time and hasten clot retraction.

b. The leukocyte number increases within hours. This is essentially due to an increase in mature neutrophils. Later, as reticulocytes are released, immature neutrophils appear together with mature neutrophils in above normal numbers in peripheral blood. This is called a "shift to the left" and the magnitude of the shift may be correlated with the intensity of the blood loss or destruction. In acute hemolytic anemia, leukocytosis should be anticipated and as with the elevation of body temperature mentioned above, leukocytosis does not necessarily mean that the hemolytic disease is infectious in character.

c. Immature erythrocytes make their appearance in the circulation in 72-96 hours after the onset of blood loss or red cell destruction. The peak of release of reticulocytes occurs from the 4th to the 7th day followed by a gradual decline as the emergency is met. The blood picture during the peak response is characterized by the presence of large erythrocytes that stain gray or blue; these are immature red cells which are called polychromatophilic erythrocytes. *Distinct polychromasia is an indication that there has been blood loss or blood destruction accompanied by intensification of erythrogenesis.* The immature erythrocytes are larger than mature erythrocytes and, therefore, such larger red cells are called macrocytes. The mean red cell size MCV is influenced by the ratio of immature to mature erythrocytes in the circulation. Thus, the magnitude of the increase in the mean corpuscular volume is also an index of the intensity of bone marrow response to blood

loss or blood destruction. Figure 1 is an example of the blood picture in the early recovery phase of acute anaplasmosis in the bovine. The large erythrocytes with relatively smooth edges are macrocytes or polychromatophilic erythrocytes (reticulocytes) while the smaller cells with pointed projections (crenation) are the mature erythrocytes. Some of

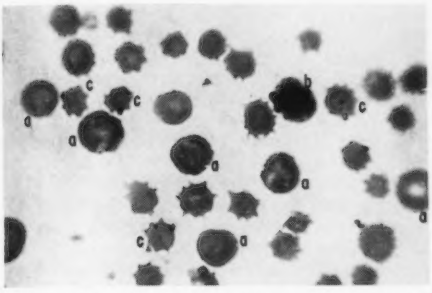

Figure 1. Blood film from acute anaplasmosis in the bovine at the peak of erythrocyte production. a=polychomatophilic macrocytes or newly released immature erythrocytes. b=a nucleated erythrocyte. c=erythrocytes containing Anaplasma marginale bodies.

these latter contain one or more small dark *Anaplasma marginale* bodies. The single nucleated cell is a nucleated erythrocyte called a metarubricyte. The variation in size of erythrocytes is termed anisocytosis. A Howell-Jolly body is a nuclear remnant appearing off-center within the red cell. Nucleated erythrocytes and H-J bodies in red cells may appear in addition to polychromatophilia when the bone marrow responds to the anemia. Punctate basophilia of erythrocytes is a common finding in the cow and sheep and appears in addition to polychromatophilia and the other signs characterizing active erythrogenesis.

Signs of abnormal erythrogenesis or bone marrow dysplasia: Occurrence of nucleated erythrocytes in numbers out of proportion to other evidence of intensified erythropoiesis is not to be interpreted as a normal response leading to building up of the erythron. An example of a blood picture of this type is found in lead poisoning in the canine.

In many chronic diseases, a selective depression of erythrogenesis occurs. The daily removal of over-aged red cells exceeds the ability of the depressed bone marrow to release new erythrocytes. As a result a progressive anemia develops and the body makes physiologic adjustments to compensate. Thus, the anemia may become well advanced before the owner of the patient is aware that a serious condition exists. The depression anemias are to be anticipated in chronic bacterial infections, nephritis with uremia, malignancies, hypothyroidism, and in trichostrongylidosis in the cow and sheep. The mean corpuscular volume remains within the normal range for the bone marrow is incapable of responding to the anemia by the release of macrocytes or polychromatophilic erythrocytes.

In the depression anemias it is common to observe the occurrence of leptocytes in the blood. The leptocyte is a thin erythrocyte in which the surface area is increased in propor-

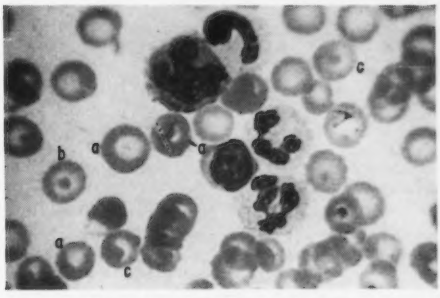

Figure 2. Blood picture typical of depression anemia in the canine in which many leptocytes are present. a=punched-out leptocyte. b=target cell leptocytes. c=variation of target cell leptocyte. (Primary disease was a chronic bacterial infection.)

tion to cell volume. This makes it possible for the cell membrane to fold or become distorted. The biconcave erythrocyte of man and the dog is capable of assuming a greater variety of leptocyte patterns than the flat disk red cell which is typical of the other domestic animals. The leptocyte that is common to all domestic animals and appears in chronic diseases is a cup-shaped cell which in stained blood films appears as a doughnut or a cell having a sharply "punched-out" center, figures 2a and 3a. A common leptocyte in canine blood is the "target cell," figure 2b. This cell has a densely stained peripheral ring of hemoglobin separated by a clear unstained zone from the dense central eye. The target cell may be somewhat modified to present a bridge of hemoglobin between the peripheral and central masses of hemoglobin, figure 2c. Another leptocyte that may appear in canine blood is the "folded cell" in which a raised fold traverses the center of the cell as shown in figure 3b.

Leptocytes may appear in peripheral blood in the recovery phase of acute hemolytic disease but at the same time the characteristic polychromatophilia and nucleated erythrocytes point to active erythrocyte production. *On the other hand, the occurrence of leptocytes in the absence of frank evidence of active erythrogenesis is to be interpreted as evidence of the existence of a chronic disease with partial suppression of erythrogenesis and the production of abnormal erythrocytes.* Diagnosis should be directed toward uncovering the underlying cause and therapy should be directed toward the primary disease and not the

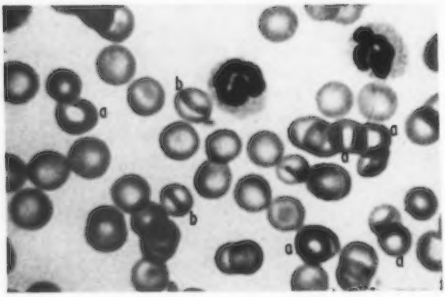

Figure 3. Depression anemia in the canine with prominent leptocytes. a=punched-out leptocyte. b=folded or bar leptocyte. (Primary disease was hypothyroidism.)

anemia. The bone marrow is incapable of responding to hematinics as long as the primary disease continues to depress erythrocyte production. Blood transfusions are not indicated unless the volume per cent of erythrocytes (PCV of the hematocrit) has fallen below 40 per cent of the minimum normal value.

Iron deficiency anemia may develop in animals suffering chronic blood loss and it occurs in grazing animals in a few limited areas of the world where the soil is deficient in iron. In iron deficiency the erythrocytes are small or microcytic and show marked deficiency of hemoglobin. In addition some poikilocytes or red cells of irregular shape are seen. Poikilocytes are fragmentation products of erythrocytes and their presence in blood indicates premature destruction of the red cells. They occur in any anemia where the erythrocyte structure is defective to the point that the wear and tear of circulation leads to early fragmentation and removal.

Primary anemias resulting from maturation arrest due to deficiency or inability to utilize vitamin B_{12} and/or folic acid are apparently very rare in animals. Cattle and sheep grazing on cobalt deficient pasture land develop an anemia related to failure by the rumen flora to synthesize vitamin B_{12}. Cobalt is needed in the vitamin B_{12} molecule. Liver extract injections, B_{12}, folic acid, and iron are of little or no value for the treatment of the common anemias of domestic animals. The majority of the anemias in animals result from hemolytic disease or depression of erythrogenesis and hematinics are not indicated.

—O. W. SCHALM

Death of Mrs. Cope's Mother

It is with deep regret that we learn of the passing of Mrs. Jennie Weeks, mother of Mrs. Russell P. Cope, on July 23rd, after a lengthy illness.

The Canine Stifle Joint

(Continued from page 42)

clicking sounds and intermittent carriage of one or both legs.

Manual examination of the stifle includes palpation of the area on either side of the middle patellar ligament for signs of pain or inflammation. Palpation of the trochlea and the patella to determine the condition of each and the relation of each to the other is easily accomplished. To determine adduction or abduction, the leg and thigh are grasped firmly each with one hand and the joint bent from side to side. With a similar grasp of the leg and thigh, the stifle is tested in moderate extension for evidence of the "drawer action" indicative of anterior cruciate rupture. A comparison check with the opposite stifle serves to confirm any observations made and avoid false interpretations. Young dogs sometimes have enough flexibility of cruciate ligaments, joint capsule and other soft tissues supporting the stifle to give a mistaken impression of cruciate damage.

Most writers on the subject of stifle abnormalities and injuries refer to the use of x-ray as an aid to diagnosis. Sometimes air injection of the joint is recommended for better contrast on the radiographs. However, in most cases an adequate physical examination leaves little for the x-rays to determine other than to confirm that which is already known.

The movie which follows demonstrates a technique for the surgical correction of fixed medial mal-position of the patella.[5] Modifications of the operation can be applied to all types of patellar dislocation or displacement including medial, lateral, intermittent and fixed varieties. The surgery consists of four major steps. These are, preparation of a lateral patellar ligament from fascia lata; freeing the quadriceps tendon, patella, and middle patellar ligament; carving a trochlea where an inadequate one exists; and relocating the tibial tuberosity in a proper anterior position.

References

[1]Paatsama, S.: The Structure and Histopathology of the Canine Meniscus. Am. Jo. Vet. Res., Vol. 15, (1954): 495-499.

[2]Schnelle, G. B.: Radiology in Small Animal Practice. 2nd ed. The North American Veterinarian Inc., Evanston, Ill., (1950): 90-93.

[3]Nilsson, Fritz: Meniscal Injuries in Dogs. No. Am. Vet. 8 (Aug. 1949): 509-516.

[4]Singleton, W. B.: The Diagnosis and Surgical Treatment of some Abnormal Stifle Conditions in the Dog. Vet. Rec., 69, (Dec. 1957): 1387-1396.

[5]Vierheller, R. C.: Surgical Correction of Patellar Ectopia in the Dog. J. A. V. M. A., 10, (May 15, 1959): 429-433.

Southern California-Nevada 2-day Symposium and golf tournament will be held in Las Vegas Oct. 12-13.

Dr. O. W. Schalm, School of Veterinary Medicine, will be at the University of Munich on a Fulbright Scholarship until September 1.

OPPORTUNITIES

Veterinarian Wanted

For small animal hospital, Sacramento area. Starting salary $425 mo. for first 3 months; $450 second 3 months. At end of 6 months there would be a percentage of the business. Six hours a day; ever other week-end off. Write Box A-75, THE CALIFORNIA VETERINARIAN.

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Full or part time veterinarian wanted in modern small animal hospital, permanent. S. F. Peninsula. Write or phone C. N. Bramer, D.V.M., 4747 El Camino Real, Los Altos. WHitecliff 8-1021.

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Small animal practitioner wanted. S. F. Peninsula. Write Box A-76, THE CALIFORNIA VETERINARIAN.

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Small animal hospital in northern California valley city wants veterinarian. Opportunity for partnership. Write Box A-77, THE CALIFORNIA VETERINARIAN.

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Veterinarian wanted. Small animal. Permanent. San Francisco Bay Area. Write Box A-78, THE CALIFORNIA VETERINARIAN.

* * *

Veterinarian with Calif. license to assist in a mixed practice in central San Joaquin Valley. Please state experience and salary expected. Write, Box A-83, THE CALIFORNIA VETERINARIAN.

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Assistant graduate veterinarian wanted. Southern California. Please write Dr. Robert G. Jones, 2470 Sweetwater Road, National City. Phone GRidley 7-1274.

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Associate veterinarian wanted for Southern California practice; 90% small animal. Write or phone W. J. Zontine, D.V.M., 44848 N. Yucca Ave., Lancaster, Calif. WHitehall 2-1489.

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Small animal veterinarian wanted for hospital on S. F. Peninsula. Excellent opportunity. Write Box A-79, THE CALIFORNIA VETERINARIAN.

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Veterinarian wanted; experience not necessary. Southern California area. Write, Box A-80, THE CALIFORNIA VETERINARIAN.

Lease Wanted

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Mixed Practice Wanted

Want mixed practice or large animal in northern California. Have had own practice in San Diego. Write Box A-82, THE CALIFORNIA VETERINARIAN.

LOCAL ASSOCIATION NEWS

Bay Counties VMA

At the July 14 meeting at Veneto's, San Francisco, the principal speaker was Dr. Irving M. Roberts, who presented an interesting talk, illustrated, on Radiation Therapy, describing the use of high voltage X-ray in the treatment of neoplastic conditions in dogs and cats.

Dr. R. L. Collinson, state association program chairman, discussed the June, 1960, state meeting to be held in San Francisco.

* * *

Santa Barbara-Ventura VMA

The May meeting of the Santa Barbara-Ventura VMA was held at the Pierpont Inn, Ventura. The program consisted of a movie on fracture reduction. Dr. Robert Morrison from Calabasas was a guest.

* * *

Alameda-Contra Costa VMA

Dr. David E. Madsen, San Jose, and Dr. Robert W. Wichmann, University of California at Davis, gave very interesting talks on bird practice at the May 27 meeting of the Alameda-Contra Costa VMA. A question and answer period followed.

At the July 1 meeting several members presented case histories, with slides. Kenneth Humphreys, executive secretary, CVMA, spoke on the House of Delegates which was voted at the state association's June meeting in Santa Monica.

Problems in a Zoo

(Continued from page 23)

ice from the men concerned and they are not working for nothing.

We at Griffith Park Zoo try to maintain a list of veterinarians who treat certain animals such as reptiles, birds, primates, etc. May I urge each and every one of you who are interested in doing any sort of zoological veterinary work to send us a note telling us in which field your particular interest lies.

We do no private practice. We answer multitudes of questions on the telephone and through the mail. It is imperative that we have sufficient information so that we can refer the public questioners to a practicing veterinarian who will care for their needs.

Many of you no doubt will wonder what sort of things occur in a zoo which will necessitate treatment. Let me quickly explain that anything that happens to animals any place is likely to happen in a zoo. Some of the following will well illustrate this.

1. Fractures. We received a donation of a pair of young mountain lions, one of which arrived with a fracture of the lower end of the tibia. This animal at 50 pounds weight was captured under a net, which was actually a piece of fish seine, wrapped up in the netting, then put under nembutal anesthesia and the fracture was handled similar to what would be done with a domestic cat or dog. The splint was made from plywood. The animal tolerated it well and after about three weeks the splint was removed and today the cat walks around in a very natural manner.

2. We raised a litter of young bob cats by hand. One of the little fellows fell from a shelf in the cage and fractured a femur. This was handled by restraining the animal in an ordinary denim cat bag. Anesthesia was by ether and again light plywood was used for splint. It was necessary to house this animal in a small cage during recovery; otherwise the little fellow was always crawling up the cage and falling again. However in due course of time he made recovery comparable to the ordinary cat.

3. Tuberculosis. My experience with primates in our Mid-western and New England zoos were that t.b. was an extremely common occurrence. While with Lincoln Park Zoo in Chicago I instituted a program of t.b. testing, sanitation and control which is still being maintained today and has resulted in substantially a clean colony so far as tuberculosis is concerned.

It is our practice to run t.b. tests on all new primates other than the great apes, before they are put on exhibition. This is accomplished by the injection of a very small minim of Koch's Old Tuberculin into the skin of the upper eyelid. The reaction, if any, will be evident in about 72 hours. Reading the reaction is simple, for the eyelid either droops or is closed, depending upon the degree of reaction.

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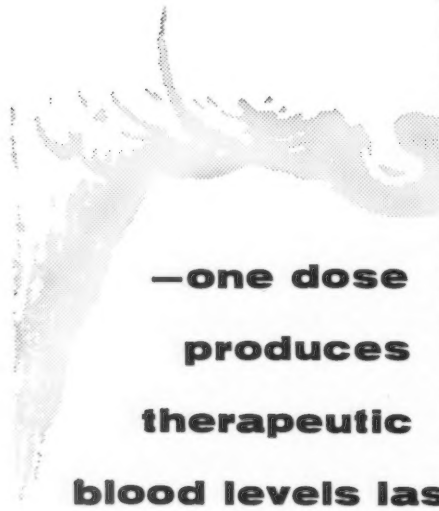

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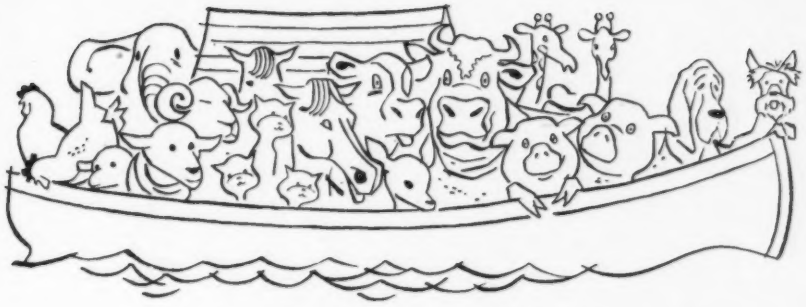

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1. Barr, F.S., Carman, P.E. and Harris, J.R.: Synergism and Antagonism in Antibiotic Combinations; Antibiotics and Chemotherapy; 4:818 (1954).
2. Baker, W.L.: Clinical Use of Injectable Neomycin and Polymyxin B; Veterinary Medicine, 53 (1958): 275.
3. Barr, F.S., Harris, J.R. and Carman, P.E.: Intramuscular Treatment of Staphylococcic Mastitis with Neomycin Sulfate and Polymyxin B Sulfate; J.A.V.M.A., 132 (1958): 110.

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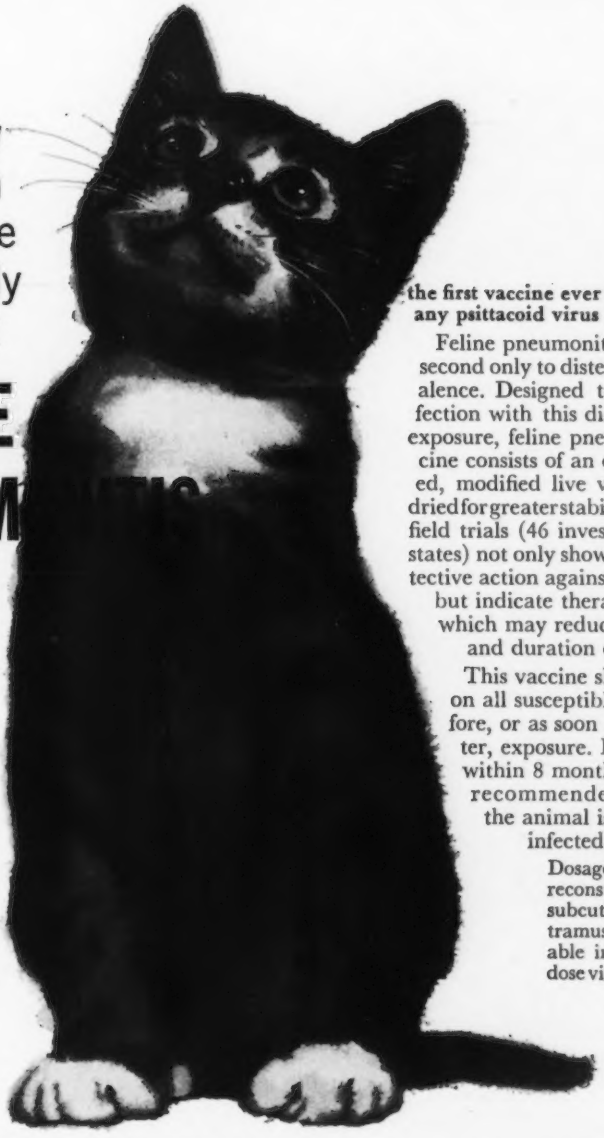

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